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The Dental Digest

September 1930

Editor~

GEORGE WOOD CLAPP, D. D. S.

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THE DENTAL DIGEST

VOLUME XXXVI SEPTEMBER, 1930 NUMBER 9

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THE DENTAL DIGEST

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THE DENTAL DIGEST

VOLUME XXXVI SEPTEMBER, 1930 NUMBER 9

Popular Fallacies As Opposed to the Facts Regarding the Etiology and Treatment of Malocclusion of the Teeth*

By WILLIAM CAVENAUGH, D.M.D., Portland, Oregon

It is only to be expected in a specialty so comparatively young as orthodontia that the laity should possess little if any accurate conception of the fundamental principles upon which its practice is based or of the knowledge of either why or at what age they should avail themselves of the benefits to be derived from orthodontic treatment.

Since the inauguration of dental inspection in our public schools the child is more apt to come in contact with the general practitioner of dentistry at an early age. Even though the dentist eliminates all orthodontic operations from his practice, it is of paramount importance that he should be able to recognize the necessity for and the proper age at which treatment should be begun. Also, he should be familiar enough with the etiology of malocclusion to eliminate from his operations upon the teeth those that are contributary to or entirely causative of conditions which later require such long, tedious periods of treatment and to be able to give such advice as will enable the patient to have treatment begun at the time that will give the best results with the least expenditure of time and effort.

Etiology

In the beginning we must recognize the fact that malocclusion of the teeth arises from arrested or distorted development of their supporting structures—very infrequently an overdevelopment—or a displacement of the mandible in its relation to the maxilla. Often complicating combinations of these causes exist in the same mouth. There is, I firmly believe, no other way by which the dentist can so fully contribute to his small patients' future welfare as by taking such precautions as will obviate or lessen the necessity for orthodontic interference or shorten the period of its duration. Since perfection of occlusion is the aim of every orthodontist and should be that of every man in general dental practice, let us delve into the methods by which this object may best be obtained.

Importance of Temporary Teeth

The teeth in normal occlusion constitute an effective machine for the grinding and insalivation of the food, which, like any other machine, in order

*Read before the Southern-Willamette Dental Society, Eugene, Oregon, April 19, 1930.

to reach and maintain its maximum efficiency, must retain all its parts with each part in normal apposition to every other. It is the dentist's highest duty to preserve each integral part of the machine in order to secure its perfect functioning as a whole. The importance of the preservation of each tooth in its original mesiodistal diameter cannot be overstressed, for it is essential to the ideal operation of the entire dental machine, and this is just as true of the temporary as of the permanent dentition. But because of the popularity of the belief among many members of the dental profession, as well as of the laity, that the temporary teeth possess little real value, due to the fact that they will be replaced by permanent ones, thousands of cases of malocclusion have been produced or aggravated.

It is sheer folly to believe that because a tooth is upheld by bony structure it will retain its correct position in the arch when it lacks the sustaining support of the adjoining tooth. Consequently in the building of the normal dental arch it is most necessary that the temporary teeth be given that consideration which their importance demands in the maintenance of occlusion.

The one prevailing crime perpetrated by the dentist, from the orthodontist's viewpoint, is that of postponing the filling of the small cavities in the temporary teeth, and those dentists who procrastinate in this matter become direct factors in the production of malocclusion, which, in reality, they are morally bound to prevent. Far too often the temporary teeth are filled in too temporary a manner, and the parent who has to foot the bill, becoming discouraged because of the necessity for frequent replacement, concludes that the teeth will not retain fillings and allows them to be destroyed. This could be prevented if the dentist, in spite of his dread of outcry and the disturbance often created by the small patient, would be conscientious enough to fill these so-called temporary teeth as permanently as he would any other. I use the term "so-called temporary teeth" advisedly, because, while the life of the tooth may be only temporary, its effect upon the proper development of the permanent arch is lifelong.

Practically speaking, there can be no such thing as the loss of one tooth, for when one tooth is extracted, not only its function is destroyed but also that of the opposing tooth, and, through the tendency of all teeth to migrate when unsupported by the contact of the adjoining ones, the functioning of all teeth on one side of the mouth may be destroyed by the extraction of one tooth. So, by all means at your command, preserve every baby tooth until the approximate time of its loss through root resorption and every permanent tooth for all time, and where, for reasons beyond your control, a tooth must be sacrificed, for the sake of preserving the position and the function of the remaining teeth insist upon the insertion of a substitute to preserve the space and the occlusal relation of the remaining teeth. This can best be accomplished, where a temporary tooth has been removed, by banding the teeth mesial and distal to the space so created and connecting these bands by a substantial bar soldered to each of the bands.

AT WHAT AGE SHOULD ORTHODONTIC TREATMENT BE BEGUN?

Unfortunately, there is much diversity of opinion among dentists in regard to the age at which orthodontic treatment should be begun, but practically none among those who have to make the corrections. Begin whenever the indication of malocclusion presents, which in most cases of arrested development is positively indicated at the age of five or five and a half years. In all normally developing jaws the anterior teeth at this age are definitely spaced, and, unless you are able at this time to pass a toothpick freely between the temporary central and lateral incisors, you may be sure that nature has not provided sufficient space for the eruption of the permanent teeth, and, as in all other orthopedic corrections, there can be no gain in allowing a pathological condition to progress to its maximum before instituting corrective measures.

In so advising we have in mind (1) the greater ease in securing development of the alveolar processes with a minimum amount of pressure upon the teeth, thus minimizing the discomfort to the little patient; (2) that the permanent teeth display an amazing faculty for erupting in normal position if given ample space, and, even if additional movement is required while the tooth is erupting, this can be accomplished within a few weeks; (3) that since the establishment of normal function is the key to the permanence of the correction, can there be a single objection to treatment at the earliest sign of necessity? Also, there is in the young child a sense of pride in wearing the appliance, whereas the youth of from fourteen to seventeen years of age makes life miserable for the orthodontist by his insistence that the operation be curtailed and the appliance removed prematurely. Many failures or partial failures result from this alone. Patients of this age are often entirely out of parental control and yet possess no discretion nor judgment of their own, so every case of malocclusion should be completed, if possible, by the time the patient is twelve or thirteen years of age.

ORTHODONTIA FOR ADULTS

Regardless of the foregoing statements, however, advocating the early treatment of retarded development of the jaws and the resulting malocclusion, I do not wish to convey the impression that those who have reached adult life must continue to suffer the inconvenience and humiliation of unsightly irregularity of the teeth. As long as the repair of fractures of the bones will take place, just so long can the teeth be moved, because the cellular activity which occurs in the repair of a fractured bone and that which takes place about the roots of the teeth during tooth movement are identical and accordingly the treatment of malocclusion is possible and practical at least to the age of sixty or sixty-five.

In my twenty-two years of orthodontic practice I have undertaken many cases between the ages of twenty-five and fifty, and with very few failures. One of the most pleasing results ever obtained was for a patient sixty-two summers young. However, great discretion in the selection of such advanced cases must be observed and only those

accepted in which the occlusion, once established, performs an important part in retention. Also, those cases in which habit is an important causative factor must be strictly excluded, for it is obvious that a habit which has existed from early childhood to middle or old age has become so much a part of the individual as to be impossible of correction, and any habit in young or old that has once produced a condition of malocclusion will, if continued, do so again, no matter how long the teeth may be retained in normal position. This is an utterly wrong assumption. Many a case is ultimately lost, regardless of the skill of the operator, because of failure to obtain the active cooperation of the patient in correcting the habit which produced the malocclusion in the first place.

Mouth-Breathing

While the nutrition of the child in pre-natal and in early post-natal life is unquestionably an important factor in jaw development, it has little to do with those distorted cases of malocclusion in which there is no crowding of the teeth through lack of space and yet no occlusion. The form of the dental arches and their relation one to the other are not mere accidents, nor are they predetermined at or before birth, but rather are they moulded into their ultimate shape by local muscular tension. Bone in early life is extremely plastic and subject to the influence of slight pressures extended over long periods of time. If these slight pressures of tongue, lips and cheeks are well equalized, a normal denture and normal relation of the jaws result. If through pathological conditions of the air passages in the nose and throat insufficient air reaches the lungs, the mouth is used as an auxiliary and mouth-breathing develops. There is then an unnatural, unbalanced muscular relaxation which produces a protrusion of the maxillary anterior teeth and a distal relation of the mandible which lessens or destroys the efficiency of the entire dental mechanism.

It is my firm belief that of all the cases treated in a lifetime of orthodontic practice over fifty per cent have been mouth-breathers, such a condition being either wholly responsible for or complicating the malocclusion. This constitutes by far the most universally destructive habit of all those affecting the development of the jaws and the positions of the teeth, and, due to the fact that the orthodontist must depend upon the uncertain cooperation of the child and his parents, there exists no more fertile source of failure to maintain the results obtained than these.

Thumb-sucking, once considered the most prolific producer of protruding maxillary teeth, fades into insignificance in the category of evil habits as compared with mouth-breathing, the pillowing of the head upon the hand, wrist or arm in sleep, and the resting of the mandible upon the hand while reading or studying. So, when you see or hear of a patient who wears orthodontic appliances three or five or even ten years, be not overhasty to criticize the operator, for he is in all probability facing the rock upon which orthodontic practices are wrecked, that is, lack of cooperation on the part of the patient and his parents. He is afraid to remove the appliances because he well knows that the abnormal pressures

which created the conditions that he has corrected are still present and active, ready to undo what has been accomplished through months or perhaps years of effort.

SUMMARY

Summarizing the foregoing, the vital parts that the general practitioner plays in the prevention or abbreviation of orthodontic operations are these, in the order of their relative importance: (1) the preservation of the dimensions of the dental arch by giving to the temporary dentition its rightful prominence and treating incipient decay of each temporary tooth accordingly, thus maintaining its normal mesiodistal diameter; (2) if caries of the tooth has progressed so far that for reasons of health removal is imperative, bridge the space so created by the simple expedient mentioned above, and in the adult make permanent restorations of any teeth extracted anterior to the second molar, in order to prevent the separation of the anterior teeth, which often follows such extractions, and to prevent the tipping and drifting of molars and bicuspids.

Divorce from your minds the antique and erroneous theories that most dental deformity is a matter of inheritance, that the development of the dental arches can be accomplished by correcting the position of the permanent teeth only (the temporary teeth serve just as well at the proper age); that a tooth, if retained a sufficient length of time in its correct position, will remain so regardless of abnormal pressures, even though slight; and, lastly, that all cases of malocclusion in the adult are impossible of successful treatment.

827 Medical Arts Building.

Traumatic Fracture of a Maxillary Central Incisor

A Case Report

By M. HILLEL FELDMAN, D.D.S., New York, N. Y.
Chief of Dental Department, Lincoln Hospital; Instructor, General Anesthesia, Allied Dental Council, New York; Author of Textbook, "Manual of Exodontia"

In the accompanying roentgenograms I present a report of a successful termination to an operation which showed very little promise of a favorable outcome.

On April 11, 1929, the patient presented for treatment. Clinically his face was swollen and contused as a result of a severe blow on the lips, nose and incisor area of the maxilla. The left central incisor was loose and holding on, literally, by a thread. Suppuration was bathing the entire area. The roentgenogram in Fig. 1 shows the apical fracture, with the rest of the tooth forced downward.

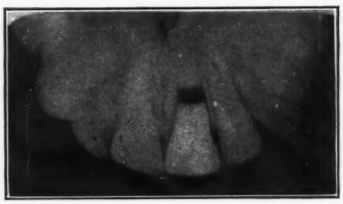

Fig. 1

Roentgenogram of the area about the fractured maxillary incisor, taken April 11, 1929. In the accident the major tooth fragment was separated from the apex and forced downward, leaving a space between the fractured surfaces. The apex was firm. Only the root-crown portion was loosened.

We decided to make an endeavor to save the tooth for the young man. The mucoperiosteal tissues were elevated labially and the apex removed. The major tooth fragment was carefully cleansed all around. Only a tiny thread of fibrous tissue held it in attachment to the alveolus. This was at the palatogingival area. The tooth was pushed upward into the alveolus to occupy its original position and after replacement of the soft tissues labially was ligated to the adjacent teeth with dental floss. The "Figure 8" method of ligation was used.

Fig. 2

Roentgenogram taken July 6, 1929. The apex was removed on April 11, 1929, and here the bone area shows that regeneration has set in. In the interim the tooth was held to its neighbors by a "Figure 8" dental-floss ligature.

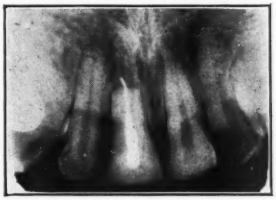

Fig. 3

Roentgenogram taken January 24, 1930, showing the root canal filled and the bone completely regenerated where the apex was removed. The tooth is clinically well and giving satisfactory service in every way.

The patient was under my care for three months before it was decided to institute root-canal treatment for the root. During all this time the suppurative process went on, and I tried my utmost to keep drainage clear.

Fig. 2 shows the case on July 6, 1929, five days short of three months from the date of injury as shown in Fig. 1. The tooth was then firm and all suppuration had ceased. The root-canal treatment was performed by the patient's dentist.

Fig. 3 shows roentgenogram taken January 24, 1930, two weeks more than nine months following the first operation on April 11, 1929. The apical area is healed and the tooth firm, giving good service to the patient.

730 Fifth Avenue.

[GINGIVITIS]

One of the most pressing needs of our profession is a better understanding of gingival conditions than is now evidenced. Although this statement has been made many times in the past, little or no progress has been shown in this important direction. Until an earnest united effort is made by all, periodontoclasia of every variety will develop unchecked and in great volume.

—TISHLER.

Acute Leukemia: An Interesting Case

By IRWIN ABEL, D.D.S., New York, N. Y.

In the course of my duties in one of the larger hospitals a case of hemorrhage, following the extraction of teeth, was brought to my attention. The patient was later found to have an acute leukemia. Although this is not a dental condition, the peculiar nature of its occurrence prompts me to write a brief summary of the disease.

Normal Blood Constituents

The red corpuscles, erythrocytes, are present in the blood in numbers from 4,500,000 to 5,000,000 per cubic millimeter.

The white cells of normal blood have six recognized forms:

(1) Polymorphonuclear neutrophils constitute 60% to 75% of the total leukocytes in a given amount of blood.
(2) Small lymphocytes average 20% of the total white cells in a given amount of blood.
(3) Large mononuclear leukocytes average 5%.
(4) Transitional forms average 2% to 4%
(5) Eosinophils constitute 5/10%.
(6) Basophils average 1/10% to ½%.

The normal white blood count is from 7,000 to 9,000 per cubic millimeter.

Leukocytosis

Leukocytosis usually means an increase in the number of white cells, especially the polymorphonuclear leukocytes. It may be a physiologic process, as during digestion, after exercise and during pregnancy.

Pathologic leukocytosis occurs as follows:

(1) In inflammation and suppuration.
(2) In toxic conditions.
(3) In anemic conditions.
(4) Preceding death, when the cells may reach a number as high as 30,000 per cubic millimeter.

Leukocytosis should be differentiated from leukemia.

Leukemia

Leukemia is a fatal disease characterized by a permanent increase in the leukocytes of the blood, in addition to the appearance of immature leukocytes, and is associated with a hyperplasia of the blood-making organs.

Clinically there are two forms:

(1) *Myeloid leukemia,* in which there is a hyperplasia of the bone marrow and the appearance of myelocytes to the extent of 20%-40% of the total leukocytes in a given amount of blood.
(2) *Lymphatic leukemia,* recognized by an increased amount of lymphocytes, amounting to 80% or more of the total white cells present.

These forms may be either acute or chronic.

HISTORY

In 1845 Hughes Bennett reported a case of "suppuration of the blood with enlargement of the spleen." He called this disease *leukocythæmia.* A month later Virchow described the same condition as "white blood" and called it *leukemia.* Ehrlich made several studies of the changes in bone marrow, spleen and the blood.

ETIOLOGY

The direct cause of leukemia is not established. Recent investigators have advanced the theory that infection plays an important part in producing this disease. The acute cases occur mostly in infants up to five years of age and in adults in their early twenties. It occurs more often in males than in females. There is no direct evidence that heredity is a predisposing cause.

In reviewing the literature I found several cases reported that resembled leukemia in which the patients recovered. All were young adults. The symptoms were those of a mild infection, running from a few days to three weeks, followed by a gradual recovery, during which the blood returned to normal.

J. Cross, in the *Minnesota Medical Journal,* 1922, reports three similar cases. He describes the condition as an acute febrile disease with local infection. In addition, there was enlargement of the spleen, the lymph glands of the neck and the groin. The blood picture resembled an acute leukemia. Since there was recovery, these cases were not leukemias.

A case of acute myeloblastic leukemia associated with Vincent's angina is reported by M. Packard and E. Flood in the *American Journal of Medicine,* 1920. The authors of this paper state that in several instances Vincent's infection preceded the acute leukemia.

Condit, in the *International Journal of Pediatrics,* June, 1923, calls attention to leukemia in the new-born. He also believes that tuberculosis, grippe and penumonia are predisposing causes.

DIAGNOSIS

A diagnosis is best obtained from a blood examination. It is sometimes difficult to determine the exact type of leukemia present because many cells examined are undergoing complete changes, thus making the lymphocytes and myelocytes almost identical. These cases are called atypical or transitional forms of leukemia. In view of this I refer the reader to any standard textbook for a description of the acute myeloid and chronic types, and I shall briefly describe only the acute lymphatic type.

ACUTE LYMPHATIC LEUKEMIA

Acute lymphatic leukemia is characterized by a sudden onset. There is fever and prostration. Stomatitis may be present. Hemorrhages from the mucous membrane may occur. There is no apparent enlargement of the liver, spleen or lymphatic glands.

BLOOD PICTURE

An abnormal number of leukocytes is found, 20,000 or more per cubic millimeter. The polymorphonuclear leukocytes, however, are present in smaller numbers. The lymphocytes dominate the field to the extent of 80%

or more of the total white cells present. The red cells drop from normal to a number resembling that found in anemia. The hemoglobin also drops in proportion to the disappearance of the red cells.

Review of Case

Admission Note. The patient, a white boy, 17 years of age, was admitted to the hospital on May 18, 1930. On May 16 he had visited a dentist who had extracted two maxillary bicuspid teeth. This was followed by a hemorrhage, and the patient returned to his dentist for post-operative treatment. When the dentist could not stop the bleeding, he referred the boy to his family physician. Bleeding still continued and the patient was brought to the emergency room of the hospital. As all efforts to control the hemorrhage were again unsuccessful, he was admitted to the hospital. A short time before his present illness the boy had undergone an operation for the removal of his tonsils without any post-operative bleeding. There was no history of hemophilia in the family.

Examination

On admission the patient appeared well nourished and developed, although somewhat prostrated from the loss of blood. There was a marked pallor of the mucous membrane of the oral cavity. Heart examination showed no enlargement. The heart sounds were of fair quality, although the rate was rapid. The pulse was rapid and thready in character, the rate 110. Temperature was 101°. The blood pressure was 114/70. The lungs were clear to auscultation and percussion. Examination of the abdomen indicated that the edge of the spleen was palpable. A few purpuric spots were noticed on the extremities. Neurological reflexes were found to be quite active.

Pathological Report

Bleeding time—1½ minutes.
Clotting time—4 minutes (capillary method).
Tourniquet test—Negative.
Hemoglobin test—75%.
Blood count—

Red cells 3,450,000.
White cells 22,600, of which the polymorphonuclear leukocytes were 34% and the lymphocytes 64%.

Blood smear—

Polymorphonuclear leukocytes 25%.
Lymphoblasts 40%.
Small lymphocytes 20%.
Large lymphocytes 15%.

In the blood-smear examination the following was noticed:

Lymphocytic cells present were in various stages of abnormality, ranging from the parent lymphoblast to the immature large and small lymphocytes and the mature lymphocytes, which were few in number.

Several Rieder cells were present, as indicated by the bilobed appearance of the nucleus of the lymphoblasts.

There was also a decrease in the number of blood platelets.

The red blood corpuscles, although stained normally, were decreased in number. The impression created from this picture was that of an *acute lymphatic leukemia.*

On May 22 a blood transfusion was performed, consisting of 340 c.c. of whole blood. The patient improved

slightly. The following day his condition again became critical. The temperature had reached 105°, and the pulse was 150. The boy was pronounced lifeless at 1:25 a. m. on May 24.

ANATOMICAL DIAGNOSIS

A post-mortem examination revealed the following:

(1) Myeloid metaplasia of the bone marrow.
(2) Enlargement and softening of the spleen.
(3) Granular degeneration of the liver.
(4) Hemorrhage into the serous membrane.
(5) Myeloid metaplasia of the abdominal lymph nodes.
(6) Anemia of the kidney, with hemorrhage into the pelvis.
(7) Hemorrhage into the mucosa of the stomach and intestines.
(8) Congestion of the brain.
(9) Hemorrhage into the right maxillary and sphenoidal sinuses.

FINAL DIAGNOSIS

From the preceding examination the case was diagnosed as hemorrhage from the tooth socket, secondary anemia and acute myeloid leukemia.

COMMENT

This case presented many unusual features. The reader will notice that the diagnosis obtained from the blood picture was not verified at the autopsy. As already explained, the disease is always fatal and most authorities regard the classification of the type as of minor importance.

In discussing this case with a prominent serologist, who was called in consultation, I was informed that the acute disease may be brought about by any trauma such as a slight fall or any injury following an accident. He told me also of one case following a slight cut while shaving.

The history reveals that nothing happened following the tonsillectomy. How unfortunate that the acute condition followed the extraction! On several occasions I have had patients tell me of hemorrhages and death following the extraction of teeth, and usually the layman is ready to place the direct cause of the disease on the extraction.

In conclusion, I wish to emphasize the importance of obtaining a blood examination whenever there is a feverish condition coincident with mouth and throat lesions.

10 West Fordham Road.

Restoring Pleasing Expression With Artificial Dentures

By JAMES P. RUYL, D.D.S., New York, N. Y.

SIXTH ARTICLE

THE USE OF PLUMPERS

The set of dentures illustrated in Fig. 1 was made for a man who differed from most male patients in that he was more particular about his appearance, especially the expression of his mouth, than are the majority of women patients. He was about 38 years of age, but wanted a more youthful expression than his age warranted.

In order to get the expression he desired, it was necessary to build out the buccal surfaces of both dentures with plumpers. This was done by building wax in about the form which it was thought might be desired on the buccal surfaces of the maxillary trial plate, putting that plate in place and working the wax upward by pressure with the fingers on the outside of the cheek. This lifted the upper half of the cheeks and the corners of the mouth in a manner highly pleasing to the patient.

If a mandibular denture for use with a maxillary denture of this form had been made with the usual shape of buccal surfaces, the appearance of the face would have been unpleasing and much trouble would have resulted from the collection of food between the cheeks and the denture because of the big hollow space that would have been left. It was therefore necessary to build on the mandibular denture plumpers of the form here shown, not only for their effect on the expression but for mechanical reasons. The wax to form the plumpers was added outside the mouth and moulded to the desired form by

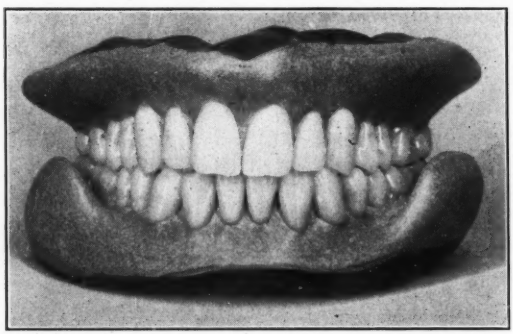

Fig. 1

Extreme plumping in full set of dentures. A little plumping improves the appearance in about 50% of edentulous cases, if done as directed in the text.

pressure on the cheeks, with the trial plate in place.

When dentures with plumpers like these are put into the mouth, the patient has a good deal of trouble with retention at first. After the dentures have been in place for a while, the muscles form themselves so well about the plumpers that when the dentures are taken out of the mouth, it appears as if there were a hollow place in the muscles.

When the muscles have formed themselves about the maxillary dentures in this way, they hold it in place with surprising firmness. Similar action by the muscles sometimes increases the stability of the mandibular denture. Patients who have become accustomed to the use of plumpers will not do without them.

While the case here shown is extreme, some degree of plumping is desirable in about 50% of edentulous cases. Many a dentist who is having trouble in getting satisfactory expression in edentulous cases may find a solution for his troubles if he will add some degree of plumpers in such way as to lift the cheeks and the corners of the mouth.

Many a mistake has been made, when trying to lift the corners of the mouth, by plumping the maxillary denture directly over the cuspids. This lifts the lip tissue directly adjacent to the nose, but does not provide a support against the weight of the cheek muscles, and it drags the corners of the mouth down so that the unpleasing effect is more noticeable than it would be if no plumpers had been placed over the cuspids.

285 Madison Avenue

Blood Pressure

By F. ALBERT DONLAN, M.D., Metuchen, N. J.

Hypertension

Many influences are active in the development of hypertension. Detecting or determining the basic cause responsible either directly or indirectly is an individual and difficult study. It is a symptom, an effect, presupposing a cause either functional or organic. In the functional state there is a hypertonia of the musculature of the arterial wall because of increased peripheral resistance from any cause. The maximum resistance is in the capillaries. It is a passive condition in its incipiency, and unless the peripheral resistance is removed, that which was a functional change becomes chronic or organic. Hypertension is an expression of advancing cardio-vascular disease or renal or cardio-renal affections. It may be the expression of premature arteriosclerosis due to a syphilitic infection or, when late, of the tortuous, pipe-stem, hardened-arteries type preceding "old age," an effect in the former instance and an end-process in the latter. Let us discuss it from the viewpoint of a focus of infection and in this manner acquire a broader conception.

A focus of infection is nothing more than a magazine of poison. The size matters little. A drop of infected material is frequently more dangerous than a pint of pus. The pint of pus exerts pressure and would be very painful. As a result the subject hastens to a doctor for relief. Finding a pint of pus should be easy, but finding a drop might require something besides a microscope, namely, clinical sense. There should be no difficulty in draining pus, but the little drop remains to pollute the blood stream by its potential poisonous qualities—a little today, not so much tomorrow, then a great deal some other day. Some day always comes, violent enough to strike and kill. For days, perhaps for years, the defense of the body (resistance) will laugh this little matter off. Then suddenly, like a mighty force and without any warning, evidence, cause or explanation, the attack comes, dramatic or tragic. There was but a negligible amount of septic material present, and the renal epithelium had always handled the situation effectively. Only a little damage to the kidney, that was all, and that was taken care of very nicely by the increase in arterial tension—a compensatory process, in other words. All kidneys are just good filtering plants functioning every day. While the individual harbored the little drop of pus or infection, the kidneys tried to tolerate the increased amount of poison. They became inflamed. The heart and blood pressure tried to help without being forced. When they were overexerted, the heart weakened and the "blood pressure" increased to compensate it. The endogenous poisons consequent to the prime offender (that exogenous drop of pus) are now eating or burning the kidneys up. What can be done with a "high blood pressure" (hypertension), broken-down kidney and enlarged

heart? The heart simply had to work to keep the "pressure" up, and the "pressure" had to help to keep the kidney functioning. The heart weakens and dilates. Pressure fails and the kidney becomes incompetent. Then comes sudden death or uremic coma.

Such has been the history of a focus of infection. It might be in a devitalized tooth, alveolar or apical abscess, pyorrhea alveolaris, maxillary sinusitis, prostatitis, tonsillitis, chronic appendicitis, fistula or fissure in ano, etc. Go back and check up the case. Eliminate diabetes and nephritis, syphilis, lead poisoning, excessive use of alcohol, tobacco and coffee, and colonic stasis from whatever cause. You want to be sure of your work. If after the study you find that oral pathology is the source of the infection, attend to it at once and assure the patient, provisionally, that there will be a reduction in the hypertension. With the source of infection positively removed, unless the damage is irreparable, the prognosis should be good. Hypertension, or "blood pressure," varies to aid kidney filtration. If the tension falls suddenly, the kidney will become embarrassed until the pressure becomes stabilized.

HYPOTENSION

Hypotension may be relative or functional or it may be due essentially to an impaired state of the myocardium. Frequently it is observed in individuals who have developed a nervous affection, as psychasthenia or neurasthenia. Mental depression due to worry, anxiety, etc., is a predisposing cause. Not infrequently in examining subjects one finds impairment of the cardiac sound (muscular and valvular) with no symptoms indicative of myocardial lack of tone—except perhaps a general feeling of lack of interest and ambition. These patients complain of "headache," a distressing or annoying discomfort in the head, and cutaneous annoyances such as itching, chilliness and stagnation of the circulation. They are restless, have no ambition and find it hard to concentrate. The systolic pressure may be 100 or less, and the diastolic below 70. The patient continues his occupation unconscious of the disturbance and attributes the ease of fatigue and lack of interest to laziness.

Hypotension is associated with many diseases as an effect, i. e., hyperthyroidism, tuberculosis, adrenalin inefficiency, anemia. It may be a reflex phenomenon caused by impacted molars, especially the third. Rarely is it due to toxic absorption from a focus in the mouth, unless occurring as a consequence of a damaged heart muscle. Oral foci generally predispose to hypertension. Gastro-intestinal diseases promoting colonic stasis (due to a disturbed motor physiology of the tract) more often favor hypotension than do oral foci. The metabolic chemistry may be active.

The modus operandi of hypertension is strain, whereas in hypotension there is a lack or loss of tone, an absence of physical reserve. Those subject to hypotension are susceptible to anesthetics and frequently are the cause of much concern in the administration of novocain. When novocain is used knowingly, it should be used sparingly and in not more than a 1% solution, free from adrenalin. Previous to extractions those affected with hypotension should be given strophanthus or digitalis, even though there are no indications for its

use as outlined in textbooks. Strophanthus has a good effect upon subjects known as neurasthenics or nervous patients who have a relative hypotension. Further, it is always advisable to determine the cause of the diagnosis of neurasthenia. Rarely is nephritis associated with hypotension unless as a terminal event.

Systolic and Diastolic Pressure

Systolic pressure represents the impact of the blood column against the vessel wall. Diastolic pressure is a measure of peripheral resistance, pressure which the heart must overcome, pressure which imposes a strain on the aorta and heart. It represents the driving power, the load carried.

The difference between systolic and diastolic pressure is the pulse pressure or the mean pressure. Pulse pressure represents the head pressure, the pressure forcing the blood toward the periphery, and the efficiency of the heart. A fluctuating diastolic pressure is a sign of an unstable myocardium or impending dilatation of the heart. It may go down as evidenced in shock, while in other instances the individual may be upon his feet. Hypertension is a conservative process, even when the underlying lesion is incurable. Preceding advanced chronic myocarditis, cardiorenal failure, dilatation of the heart, the arterial tension fluctuates. The systolic pressure may rise or fall and the diastolic ascend. Pulse pressure is the guide to the fluctuation which indicates progressive weakness of the heart muscle. The volume of the blood column becomes smaller and weaker and finally disappears as the pulse pressure decreases.

Endocarditis

The origin of endocarditis is very frequently obscure. In the event that it develops during the course of an infectious fever the etiologic factor becomes evident. Any form of sepsis favors endocarditis. The heart is invaded in the process of a bacteriemia or toxemia. Warty vegetations form on the valves. These vegetations are composed of fibrin, white cells and organisms. The streptococcus viridans and gonococcus have been isolated in the vegetations. Usually a degree of myocardial degeneration is present. The heart enlarges to meet the increased resistance offered by a damaged or leaking valve, which might be the result of ulceration. Murmurs or adventitious sounds soon develop. Many chronic sufferers are anemic and have a history of rheumatism.

Pyorrhea alveolaris may account for an otherwise obscure endocarditis. Any pathology of the mouth or elsewhere, such as maxillary sinusitis with pus formation becoming systemic in effect, will promote endocarditis. This does not always occur, fortunately, but is always very likely. Thus the advisability of removing a focus of infection before the secondary manifestations become chronic. When damage to the cardiac valves occurs, such as thickening, perforation and ulceration, nothing will cure it. Anything intended as a cure after destruction of the valves has taken place only lessens the load. The subjects have a history of shortness of breath and palpitation upon slight exertion, perhaps a history of indigestion, epistaxis (nose-bleeding), dizziness or ease of fainting.

344 Main Street.

Partial Denture Prosthesis*

By WILLIAM I. McNEIL, D.D.S., Chicago, Ill.

Where Are Partial Dentures Indicated?

Partial dentures are indicated where there are a few teeth remaining so situated in the mouth that you can really take advantage of them. For instance, if in the maxilla you have the six anterior teeth remaining, from cuspid to cuspid, there is no reason, provided the teeth are all right and the denture is all right, why you cannot construct a partial that will be satisfactory. On the other hand, a large percentage of our partials are lowers, with the six or possibly seven anterior teeth remaining there, and with those we have very little difficulty.

The lower lingual bar has never given us any great amount of trouble. If we get a complicated case, either upper or lower (by "complicated" I mean, for instance, a molar in position on one side, a bicuspid missing and the teeth from cuspid to cuspid in position and perhaps two bicuspids out or perhaps all of the teeth out on the opposite side), where the teeth are inclined to tip so that the diameter between the gingival surfaces is greater than it is near the incisal or the occlusal surfaces, then we have difficulty. This is especially true in obtaining accurate impressions. The reason why you dislike, and why we all dislike, partial denture work is because of the uncertainty that we all seem to have in obtaining an accurate impression.

The general rule in partial dentures, where there are a few remaining teeth, is to get the fulcrum somewhere near the center. If there are teeth, perhaps two or three on each side, from the cuspid on one side to the bicuspid on the other in an upper, or the reverse, then you have a counterbalance, an equalization of these stresses and the tendency to come back to the center of gravity. Wherever those teeth are situated so that you can really make an attachment on the teeth to maintain the appliance in position, a partial denture is indicated.

I shall give you some of the fundamentals that you must take into consideration. First comes the actual condition of the tooth or the teeth to which you are going to make the attachment. Secondly, the tooth cannot be any stronger or support an appliance more than the condition of the investing tissue, both hard and soft, permits, because the tooth may be perfectly all right as far as the tooth itself is concerned, but if the investing tissue is affected in some way, in a pathological way or due to pyorrheal conditions, it may be loosened and the tooth itself cannot maintain the appliance in position. You have to have a satisfactory condition of the teeth, a satisfactory condition of the investing tissue, and the proper distribution of these remain-

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ing teeth in order to make a satisfactory partial denture.

Then, too, in partial denture work we must consider the advisability of maintaining those teeth or extracting them and making a full denture, and that is brought about only by our judgment in the cases we have experienced in construction. The easiest way and the simplest way is to extract the teeth, perhaps, and make full dentures. That is the reason why most of you dislike partial dentures; in other words, it is the path of least resistance. You can probably get better results with a full denture than you can with a partial. That does not, however, mean that it is justifiable to take those few good remaining teeth out and make a full denture. Where those teeth are so situated, and where all these other qualifications are present, I should by all means retain those remaining teeth and make a partial denture.

Then, too, in addition to the actual conditions as you find them in the mouth, you should take into consideration the mental attitude of the patient. You can appreciate, when these people come to you for partial dentures, that perhaps they have never worn anything in the way of appliances except a crown or a fixed bridge. You say to them, without hesitancy, "These teeth should come out and a full denture should be constructed."

If the patient has absolute confidence in you and in the type of work you are going to construct, that is all well and good. Unfortunately, you do have people come who are not entirely convinced in their own minds that it is just right to lose those teeth, and a blunt statement such as that is a shock. It is a mental shock to them, just as it would be if a surgeon said, "You must have so-and-so." If he says it bluntly, there is a mental response that is not conducive to the best results. There is the same reaction in a minor way in your partial denture work, so you should, in a measure, try to increase the confidence of the patient in what you are attempting to do for him. You must consider the patient's mental attitude toward you in respect to a partial denture.

Question: In a case where there are two centrals and two cuspids with the laterals missing, would you use two bridges? Two laterals are missing of the six anteriors and the two cuspids are there. Most of the other teeth are gone.

Dr. McNeil: It is questionable in a case of that kind. You have only four teeth. Your fulcra are directly opposite each other and anterior to the center of the palatal surface, so that it is right on the borderline as to whether you should maintain those teeth or extract them.

There are several things that would govern that. The first would be the mental attitude, of which I have just spoken. There are certain types of people who would not allow you or any one else to extract those teeth. That is perhaps what you have in mind.

Member: That is just what the patient would not do. All four teeth are perfectly healthy teeth.

Dr. McNeil: The patient will not submit to the extraction because he can tell—all of them can tell—in what condition those teeth are. They know what they can do, and how these teeth look.

It is a question of the mental attitude in this case.

You know, you can always build a full denture, but you cannot turn it around and build a partial, so my theory has always been to build a partial denture, instruct the patient as to the approximate life of the case (it had better be a year, perhaps, or short of what you actually think the life of the denture will be), and tell him frankly just what to expect. He will feel satisfied.

The surprising thing about this type of patient is that he will tolerate a partial, whereas the other type of patient would not. This patient will cooperate with you to the limit, and he will put up with a number of things because he has insisted on your doing the thing, perhaps against your better judgment.

You can construct a partial denture in this case that will be satisfactory. Your attachment in this particular case will be on both cuspids and the centrals, with a unit attachment on both centrals. By "unit attachment" I mean this: The Doctor says these two centrals are sound. Make a mesiodistal tooth clasp on these two teeth, not grinding into the mesial but going around both of them.

You have incorporated all four remaining teeth into a sort of unit attachment, and this is true especially of the two centrals. It would be better to have both of these teeth help to support it than one individual tooth, but the unfortunate thing is that the natural tendency of this case would be to drop in the heel, and if there were a little drop all the time, just gravity, there would be more tendency to displace or interfere with these two teeth from gravity than there would be from the actual masticating on them, because this one force is constant. The only time it is not constant is when the teeth are occluded. This constant little pressure, because of the weight, would perhaps have a tendency to loosen these teeth, depending largely on the accuracy of the attachment on them.

Fortunately, by making this attachment on these two centrals you have helped to counterbalance this, because it is farther removed from the actual fulcrum in the other direction. If these teeth were out, you could counterbalance it entirely, but you can take advantage of them by utilizing both teeth in a unit attachment of this kind.

In this patient, perhaps, depending upon the bite and the massiveness of the teeth that you supply, you necessarily would have to supply the two laterals. Then I should put on the bicuspids, first and second, and one more on each side—two bicuspids and one molar. This reduces the leverage and the weight. In addition to that, I would cover the entire palate with the material you are using, because you will get some support from the palatal surface and you will get a certain amount, maybe slight, of adhesion.

Question: Would you attempt to go over the heels in covering that?

Dr. McNeil: By all means. I am glad you brought up that point. Extend the saddle to cover all the possible areas that the muscular attachment will allow. It makes no difference how far it is. If there is a pronounced tuberosity, as is often the case, standing up conspicuously, go right up around it.

There will be an increased weight proportionately on the extension of the saddle, but what is accomplished in extending it back behind the tuberosity is in the lateral mastication. You get stabilization.

Question: What type of partial plate would you use with all the six anterior teeth in? That is, of course, if the patient had been without teeth for some time and the bite was very close.

Dr. McNeil: With the six anterior teeth you have practically the same position, except that there is an advantage with the six anterior teeth over these four. The bulk of the appliance would be of practically the same design, but in addition to making the attachment on the two bicuspids I should simply extend it. This case would necessarily be of some sort of metal, a cast metal. If the patient cannot afford an all-gold case, you can make a metal framework of the attachment and then use either vulcanite or condensite. Make two mesiodistal clasps on the cuspid teeth and make the gold up to approximately the incisal edge of these remaining four teeth, so that this gold will strike approximately around the cingulum area or just below, gingivally to the cingulum area. We want a jumping effect, so to speak. We do not want any impingement on the free gingival margin, so we have a jumping effect from this area up to the cingulum area, and from the cingulum area this would extend up and over to the entire lingual surface of all four of these remaining teeth.

What happens now? The posterior portion of the saddle has a natural tendency to drop down in the heel. As that drops down in the heel, the anterior portion goes in the opposite direction. Is that right? If that is true, and it is true, this cannot drop, because this metal will not permit it to drop. It is lying snugly, it is an accurate impression of the lingual surfaces of those teeth, and it can drop in the heel but very slightly. There will be a very slight dropping, but not in the same sense as if there were just these two attachments with no support anteriorly. It is counterbalanced again. This is just a little more advantageous than the previous case of which we spoke.

Campbell would tell you to take out the six anterior teeth, but some of the most successful cases I have had in partial denture work have been of this very type. The same holds true of a lower case where you have six anterior teeth. This rest is a Cummer and an indirect retainer. Roach calls it a stabilizer, but the two are practically the same thing. The only difference between them is that Roach favored bringing more teeth in and utilizing them and Cummer often extended a little finger-rest over onto one or more teeth to counterbalance this drop. Personally, I should prefer to get as many teeth in the attachment as the case justifies. I cannot give you a definite rule to follow, because each case is a law unto itself and every case is different. You can overdo attachments, but more often you underdo them; that is, you have too few attachments. Consequently more pressure is brought to bear on the teeth, with a decrease in the life of the tooth and in the life of the tissues surrounding it and consequently a lessening of the life of the appliance itself.

Member: This is a thin casting.

Dr. McNeil: A thin casting, 28-gauge.

Member: Frequently I have thought, as the Doctor mentioned here, that with the closed bite the lower anterior teeth would probably come up under the lingual of those cases.

Dr. McNeil: You have to grind the teeth to permit a 28-gauge cast or lower gauge cast to go in. There is the choice of doing that or putting the pressure on these two teeth. Of the two evils I should select the lesser, and I should suggest a slight grinding on the lower teeth where the bite is. There is no reason why you cannot open the bite. If all the posterior teeth are present, why not open the bite a fraction of a millimeter and do away with that close bite? I should not make radical changes in opening bites in patients who are well matured in years, because that is treading on dangerous ground, but the bite can easily be opened half a millimeter without causing disturbance, and this would give ample room for the thin casting lying on this lingual portion of the teeth. Select one of the two, and if you must grind, there may be one tooth, perhaps, posteriorly, that occludes with the lower tooth. That complicates the situation a little more. Do not destroy that established relationship between the two jaws. In this case I should not open the bite, because it is surprising what can be done with one good tooth which occludes with another good tooth. I should not want to lose that surface.

A few years ago, as I was hurrying through the clinic, I saw a patient who had two molars remaining on the upper left side. Those two molars were just as good as any two molars you ever looked at. The patient was perhaps in the fifties, with two good substantial molars. That is all she had in the maxilla. I looked at the case hurriedly and immediately recommended that those teeth be extracted, and that a full denture be constructed. She had a mouth favorable for a full denture and everything was in her favor. After making that decision I walked away.

I had gone only a short distance from the chair when the patient stopped me with the statement: "But, Doctor, I should like to keep those teeth if I possibly can." Immediately I saw that the patient was not the average case that comes into a clinic, and that she was concerned about those two teeth. Also, I want to impress upon you that these were opposing two good molars. I think all her lower teeth were present. She had good, broad masticating occlusal surfaces.

When she made that statement, I went back and began to scrutinize the case a little more carefully. Just what was really the best thing to do began to revolve in my mind. I was in just the stage in which you were in the case about which you spoke—right on the borderline—yet this patient wanted to keep those teeth. If she kept them, we could not make a full denture.

I said, "If you insist upon keeping those teeth, we will try to build some sort of attachment there and make a partial." But one of the most striking things about the whole conversation and the condition was this: could that patient, with two good molars, the first and second in the maxilla, opposing two good molars in the mandible, masticate her food as well as she could if she had a full denture against her lower

teeth? I came to the conclusion that she could. Perhaps part of this decision was due to the fact that I had lost an upper first molar at just about that time and could appreciate how much business can be done with one molar tooth.

I do not know how many of you agree with me, but I venture to say that that patient could actually masticate her food better with her own two molars against two molars than she could with a full denture. That was the conclusion I came to, so we made a unit attachment and an occlusal rest. It was nothing more than a compound buccolingual grip. From that we extended a portion down onto the palatal surface and made a vulcanite case.

The patient was there primarily for esthetics. She was not concerned about mastication. She wanted something that looked all right. Later, if she felt like it, she could take the case out when masticating. She told me that she was getting along all right so far as masticating was concerned, and that if she objected to the partial denture, she could take it out while masticating and wear it only for appearance. She would not submit to the extraction of the teeth.

If you do not build a partial denture for patients, they will go over to John Smith or Bill Jones or somebody else who will. It is surprising how they can ease out of the chair and say they will talk it over with their husband and let you know later, and you never hear from them. Why? Because they have sensed the fact that you are not capable of doing something for them under actual conditions. You had better go ahead and do the best you can and fail in it. They will have more confidence in you than if you say that you do not want to do it or cannot do it. There is no reason why you cannot do it as well as the other fellow. Perhaps you do not want to do it, and perhaps it is a little against your better judgment to do it, but why not take care of these patients? After all, you know, when all the teeth are gone in any mouth, we are about through with the dental end of it. Think it over. However, I do not allow teeth to remain where conditions are absolutely opposed to their maintenance.

What Are the Preliminary Steps for a Partial Denture?

First, there is the question of attachments. If attachments are to be made in the crowns, whether they be Richmond dowel crowns or gold inlays, a rigid attachment of some type may be used to hold the partial denture in position. By "rigid attachment" I mean any of those types of attachment that fit very snugly into each other. There are usually two parts in any type of attachment, that is, in the general rigid attachments of which I speak, a male part and a female part, and the rigid ones are the attachments that fit so snugly that there is no movement between them.

If crowns or inlays are to be made, I should rarely, if ever, use a rigid attachment in a crown or inlay of any description for partial denture work, but it may be used in removable bridges. In this case the span is smaller; there is less strain on the tooth; it is a tooth-borne appliance, whereas a partial denture is in reality usually a com-

bination tissue-borne and tooth-borne appliance.

However, there are many typical tooth-borne appliances that are apart. The semi-rigid attachments would include any form of ball-and-socket attachment. Roach had the old ball-and-socket attachment, but it is the typical ball-and-socket joint which allows quite a little movement both upward and downward and laterally.

The clasp, with its varied designs, would be classed, primarily, in the semi-rigid attachments, so that the preparation for partial dentures would be the construction of these. If the tooth is sound and firm, I should hesitate to cut into it to put in an inlay or a crown. If there is a crown already on the tooth, by all means utilize it with an attachment of one of the types of which I have spoken to hold the appliance in position. If it is a cast clasp of the varied designs, the only necessary preparation is the grinding of two surfaces on the mesial and the distal and the occlusal rest area, if it is a posterior tooth, and there should always be an occlusal rest.

Do you all know what an occlusal rest is? An occlusal rest, to me, is very essential both on the Roach clasp and on the cast clasp. Where the bite interferes and does not permit the placing of an occlusal rest, it is necessary to grind over the marginal region (never through the enamel) a smooth continuous crescent shape on which that rest can be built. Reduce the abruptness on the marginal ridge where it has a tendency to come to a point.

What Kind of Materials Are Best Suited for Taking Impressions?

I prefer modeling compound. If you know how to treat it and handle it, better results are obtained. No one will deny the fact that the cleanest, most accurate impressions are obtained with modeling compound. It can be utilized in partial denture work as well as in full denture work, if it is used in sections.

You cannot take a mass impression with modeling compound, force it where teeth are divergent, chill it until it is immovable and then expect to remove it from the mouth. It is a physical impossibility. One of two things will happen. Either the teeth will be extracted or the modeling compound will give sufficiently to allow it to be withdrawn. To obviate the divergence of these teeth which keep the modeling compound from coming out, take a mass modeling-compound impression, chill it and trim it back to the crest of the buccal cusps of the posterior teeth and the incisal edges of the anterior teeth, and in eighty or ninety per cent of the cases, possibly more, you can easily withdraw it either downward and backward or upward and backward.

I should rather spend more time on this question than on any other, for I think this is the most important of all. It is characteristic of our partials, that they may be rotated in any position, and there is a divergence so that the diameter is greater gingivally than it is occlusally. No matter what material we take a mass impression with, we either have a fracture or have to extract the teeth.

It is one thing to take an impression and another thing to determine whether it is an accurate impression of the actual conditions. Many of us just hope

that it is all there and make the adjustment when the case is finished. There is nothing like an actual detailed impression of all the conditions. They are going to be utilized for the saddle area or attachments. They should be accurate so that there may be some definite guide as to the actual construction of the case.

Trim the impression back to the buccal cusps and beyond, if necessary, and remove it. Make a V-shaped notch in this space. Take a small bit of vaseline and rub it around the whole outer surface. Place it back in position and have the assistant or the patient hold it in position, and then, with a mixture of plaster of Paris about as thick as is used to pour models, begin on the most distal portion of the posterior tooth, using no tray. Just take the plaster spatula and the mirror and put it in and pull the cheek out and paint it on. Come around to approximately that position and then begin over here and do the same thing in one mix. It can all be done in one mix.

When that is set and crystallized, with a little pressure under the plaster one piece will drop off here and another there. Remove the palatal portion and you have an accurate impression; you can get every detail in any complicated case when you use this method. You may have more sections. You may perhaps have to increase it by one or two more sections than I have here, but you can get an actual impression of the actual conditions by this method. When you have it in from one or two to five sections with this notching, you do not stay in the laboratory talking to yourself about getting the pieces in their correct relationship.

Some men say that it takes a great deal of time to take a sectional impression, but it does not if you consider the time you spend in assembling. If you take the plaster of Paris impression, it comes out in fifteen or twenty pieces. It is surprising how those little pieces disappear. They are not there when you come to assemble them and you supply a little wax to replace the missing pieces. The whole thing is sent to the laboratory in the hope that the laboratory man will construct a case that will be satisfactory. This is purely an engineering problem all the way through.

Suppose you were to give an engineer a problem of this kind with as indefinite materials to work with and with as inaccurate impressions as we sometimes have, expecting him to get results. He would laugh up his sleeve, wouldn't he? In this way you can get a definite, accurate impression.

We have other materials, but, as I say, modeling compound would be my preference. You can take plaster of Paris and do the same thing that you have done in sections. You can take common plaster and do the same thing. You can take plaster of Paris and leave it over the tissues and add either modeling compound or carding wax and get an impression of the tissue over a saddle area. If you want compression on the lower where there is a lot of soft, flabby tissue and are quite convinced that there is going to be considerable resorption, simply relieve the plaster of Paris and, if this is a saddle area, simply cut out this portion of the plaster to the depth of approximately two millimeters. Place ordinary carding wax, on which teeth are mounted, in here and come back

into the mouth with pressure. You can do this if you have only a part of a section.

Question: Before you put that plaster in there, did you say you cut that V-shaped notch?

Dr. McNeil: Only as a guide to determine the relationship of this buccal portion to the lingual. Just cut a small notch, which gives you an accurate, definite guide. If you do not, there may not be sufficient guides there to put it right home without any question, but, with a notching here and there, there is no question as to its relationship to that lingual or palatal portion of the impression.

Question: How do you take care of those undercuts in the lingual with the first impression over the palatal surface where they converge like that?

Dr. McNeil: You have cut this back to the crest of the buccal cusps. That practically does away with the undercut. If it necessitates an additional amount of cutting in order to withdraw it, you have to cut it.

Member: I mean on the lingual.

Dr. McNeil: The lingual will not hold it. It is the gingival that is holding the case, unless the lingual is tipped this way. If it is, you have to increase the sections, if you want an accurate impression, or cut more of the modeling compound away back to a point where you can remove it. You must remove all this palatal portion or should, at least, in one piece. You must cut it back if it necessitates your going back this far, but such a necessity is rare. In most cases as far back as the crest of the buccal cusps is sufficient.

What System of Partial Denture Technics Can Best Be Suited to the Average Practitioner?

I should say all of them. I have no pet hobby, nor have I any "baby." I believe in every man doing the thing that he can do best, and I do not believe in changing your method of procedure if you are getting results. If you have been getting satisfactory partial dentures with the technic you are using, go right ahead. I wouldn't adopt the technic of the best man on earth, if I were getting results, just because it was new and different from what I was doing. I do not think that is any justification for the change.

On the other hand, if you are not getting satisfactory results on partial dentures, then I should change. I think that is the logical conclusion. I build vulcanite partials and combinations with or without clasps. I build them in combination with cast clasps. I make these attachments in combination with both the condensites and the vulcanites. I make those semi-rigid attachments of which I spoke. I make partials of gold and porcelain, using cast clasps of the varied designs. You have one or four or five different varieties from which to select, and your selection is governed by the ability of the patient to pay the fee which you must get for the amount of service that the building of the plate necessitates.

I might say that at the present time I am a little inclined to favor vulcanite bases for saddle areas and lowers. I have made a lot of gold cases, and I find that there is considerable resorption, and that gold rebasing is not so easily the path of least resistance, but

that if it necessitates rebasing a number of times, the gold case will become quite heavy. Right now I am just at the point where I believe that vulcanite cases in lowers on a gold skeleton construction are preferable to an all-gold lower case.

Question: Have you attempted to rebase it?

Dr. McNeil: Condensite? You can do it with full dentures, so there is no reason why you cannot with partial dentures. Perhaps you misunderstood me. I should use any of those condensites where they are indicated with the anticipation of replacing them. I speak of vulcanite as a means of building up to compensate for the resorption.

What Types of Attachment Are Used Most Successfully for the Maintenance of Partial Dentures?

I think the average practitioners in the entire country are getting better results with perhaps some form of cast attachment than with any other kind, and the use of that particular attachment is so self-evident that they must be getting results, although there are a number of other satisfactory attachments that could and should be used where they are indicated, such as those I have enumerated. The semi-rigid attachment, the Roach clasp attachment, and even some of the very loose attachments that are manufactured are sometimes indicated where we want to maintain the teeth and not put any abnormal or unusual stress on them.

What Other Materials May Be Used to Advantage in Partials?

You may use condensites, vulcanites or gold combinitions, a combination of gold with rubber or condensite, or all gold, whichever is indicated, and whichever the patient may be able to pay for.

Question: What about aluminum?

Dr. McNeil: I should not recommend aluminum. I do not see any occasion to use aluminum from any angle with the increased accuracy of casting. If there is any breakage—and there often is—aluminum is a pretty difficult problem. You might as well start at the bottom and build the case over. The ease in repairing cases should have some consideration when you are building partials, because there is often breakage, changes, or loss of teeth, and it would be foolish to build a partial case, knowing definitely that in two or three years the patient would lose an additional tooth or two.

The economical thing is to build something that you can add to in the most inexpensive way. That can be done very nicely, of course, with gold construction, the most sanitary and the best way.

Is the Sectional Method of Construction Preferable?

That question really means the following through of this same method in making castings, as compared with the one-piece casting.

Does the One-Piece Casting Have Advantages Over the Other Methods?

The one-piece casting is a time-saver, if that is an advantage. It allows you to build a master model on which you can do all your adjusting. You can do all your adjusting on this pattern or have the laboratory man do it for you, so there is an advantage there.

There are places in partial denture work where a sectional method of construction undoubtedly would be preferable, but there are really only rare occasions where you would make castings in sections in preference to a one-piece casting, and also because of the fact that they have so perfected the casting that there is not much occasion to use it. There are men in the profession who absolutely do not and will not under any consideration make a one-piece casting.

Question: Do you think you can get model materials now with sufficient expansion to make the one-piece casting?

Dr. McNeil: There is more compensation for the changes that occur in making large castings than there was four or five years ago. That, of course, is primarily the reason why the technics that evolved have made the one-piece casting popular. You know, if you have built many of them, that they do go into place, that they do give satisfaction, and that there is not so much pressure brought to bear upon the abutment teeth as some men would lead us to believe. I say that the fact that they are building so many of them is pretty good evidence that there is some merit in a one-piece casting.

Should the General Practitioner Construct These One-Piece Castings?

You may take that in two different ways. What I really meant to ask in that question was whether the general practitioner should handle it or whether he should even take such cases. In answer to the latter I should say yes, whether he does them himself or sends them to the laboratory. Laboratories are equipped and in position to produce the cases, provided they are given the necessary fundamentals with the impression, but you cannot expect any laboratory or laboratory man to get results in a one-piece casting or in an assembled casting better than the cast you send him. If you send him an accurate impression (there is no reason why all of you cannot construct them, because they are not complicated), there is a good deal of satisfaction in making a one-piece casting. So I should encourage you to go ahead and make your casting. If you do not do it yourselves, have some reliable laboratory man do it for you, but I should certainly have it accompanied with instructions as to what is desired, in justice to both yourself and the laboratory man. Do not expect the laboratory man to do the impossible. Do not expect him to do your designing—that isn't fair to him.

I asked at a state meeting down South one time what percentage of impressions was accompanied by instructions. The owner of a large laboratory with a good reputation replied, "not five per cent of cases."

5 South Wabash Avenue.

New Dentistry Eliminating Infection From All Mouths*

By ROBERT CHENEVERT, D.D.S., Montreal, Canada
Professor in the University of Montreal

May I ask you to listen with indulgence to this lecture, which exposes the present situation of dentistry and the modifications I would suggest for its improvement.

It is indisputable that for the past fifteen years our profession has made considerable progress in all its specialties. We are gratified at these results, but we must not rest on our oars. I am of the opinion that all of these improvements which have been made in our domain during these years will serve to open our eyes and cause us to realize how poor has been the dentistry of past years, and how much our present dentistry has yet to gain. Let me furnish the proof.

G. V. Black, the father of modern dentistry, said that one-fourth of us have septic mouths at twenty-five years of age, that at forty-five nearly 90% are septic, and that after fifty practically all mouths are septic. Probably not much improvement can be recorded since Black made this statement. Does this not cause us to reflect? Is it astonishing, with such a situation, that 40% of all diseases arise from infection in the mouth?

On the other hand, the Metropolitan Life Insurance Company submits statistics which prove that persons who have had a large amount of dentistry, that is, crowns, bridges, pulpless teeth, and who have had a general examination of all their organs are in poorer condition and have less resistance than persons who have been exempt from so much dentistry.

Relation of Oral Diseases to Other Diseases

Goadby called attention to the relation of diseases of the gums and arthritis. He was able to produce experimental rheumatism in rabbits with streptococci isolated from pyorrhea pockets and secured recovery in some of the severe cases by eliminating the primary focus.

In their work on experimental endocarditis Detweiler and Robinson found lesions of the heart in 80% of rabbits inoculated with streptococcus viridans taken from infected gums.

Hartzell and Henrici injected streptococci from around teeth, with resulting infection of the heart, joints and kidneys.

This proves that pyorrhea spreads its microbes everywhere and weakens and predisposes the system to all sorts of sickness.

Weston Price, who has written volumes on infection of the mouth, proves that in removing this infection considerable improvement is brought about in cases of heart trouble considered incurable. He proves, in the same volume, that pulpless teeth causing the destruction of bony tissue considerably facilitate the road to tuberculosis.

* Read before La Société Dentaire de Montreal, May 14, 1930.

Cotton claims that the removal of the focus of infection in the mouth is the best treatment for mental and nervous troubles.

THE MOUTH AS THE BAROMETER OF HEALTH

These facts, I think, are sufficient to show that the mouth is the barometer of health. Whatever may be the sacrifices that we must make, infection of the mouth must disappear at any price. Our present practice, which causes infection in the mouth, contributes considerably to diminishing the prestige of our profession, because it ranges against us the physicians, the insurance companies and such other societies as are interested in public health.

This state of things has lasted too long. I wish this evening to present a new program of dentistry that would win over the adversaries of our present theories. It is a sane dental program, which would eliminate infection from all mouths.

I do not know whether you realize what such a program would represent. I will cite the opinion of Sir William Osler, a great physician of the last century, who said, "If we could eliminate infection from all mouths, we would thereby accomplish the greatest of all hygienic movements."

Charles Mayo, the great physician of the Mayo Institute of Rochester, said some time ago that the next great movement for preventive medicine would come from the dental profession. As you see, eyes are directed upon our profession, and the medical bodies anxiously await the reforms and the assistance that we may bring them.

TREATMENT OF CHILDREN'S TEETH

I would begin by giving you a few suggestions on the subject of children's teeth. I would have parents receive dental education sufficient to induce them to take their children to the dentist at the age of three years and to renew such visits consecutively four times a year.

You are perhaps of the opinion that at that age children are so young that they have no need for the dentist. This is not so. If the teeth are to be saved, they must be taken care of before it is too late.

A good brushing of the teeth should constitute the purpose of the child's first visit. On the next visit, three months afterward, if there is caries, an antiseptic cement should fill the cavity; if there is no caries, a second brushing would justify this visit.

As the first visits would be very easy, the children would be proud of themselves; they would become familiar with the dentist. When the age of fear arrives, that is to say, six, seven or eight years, the children would continue to go to the dentist with confidence and courage, knowing that the preceding visits had been very easy and even most agreeable.

Very different from children of the present day, they will preserve their first teeth until the coming of the second, thus benefiting the surfaces of mastication, which are so important during the time of growth.

The permanent teeth, treated in the same manner, will be more regular, since the first will not have been removed until the moment of the coming of the second. Being regular, they will be more easily saved and with the con-

tinuation of the visits to the dentist four times a year this young generation will be protected from crowns, bridges, pulpless teeth and orthodontic treatments. These children will keep their complete dentition, protecting them against all the disorders arising from infections of the mouth, thus making a strong and robust generation.

Our present generation, not having benefited from this preventive dentistry which I suggest for the coming generation, has to fight all sorts of dental complications, which, being solved by the present theories, bring us to the infection of all mouths, as proved by the statistics of G. V. Black.

Treatment of Root Canals

The recommendations I wish to submit to you this evening have for their object the disappearance from our profession of all the big errors which have hitherto existed. I will begin by ruling on the question of the treatment of root canals as practiced in dentistry almost since the beginning of the profession, and which have been the cause of incalculable wrongs. There always have been adversaries of such treatments, but they have been few in number, and the removal of pulps of teeth has always been done on a large scale.

The statistics which serve me as a valuable aid in proving what I wish to suggest to you are from Arthur D. Black of Chicago. In 6,000 x-rays which he took of teeth that had undergone treatment of canals not controlled by the x-ray he discovered that 78% of such teeth were infected, which is to say that the ordinary method of treating the canals of the teeth, uncontrolled by the x-ray, results in a complete fiasco, and that this method should forever disappear from dentistry.

If we improve the treatment, if we use nitrate of silver or ionization or other recognized modern methods, with the help of the x-ray, may we undertake the treatment of canals with success? I reply that the proportion of chances is not great enough, and we should undertake these treatments in special cases only.

It has been proved by John B. West, of Elmira, by bacteriology that in spite of ionization and the other recognized modern methods, and in spite of the aid of the x-ray, when a serious overload is produced in a person having a pulpless tooth, our theory falls to the ground and infection is produced at the end of the root.

Experiments have been made in many cases, and in a number of them the x-ray has indicated nothing abnormal at the root. I am going to tell you what I would suggest on this subject. Treatment of the canals of the teeth should not be undertaken in jaws where some teeth are already missing, because it is better to have one tooth more on an artificial appliance than to have a pulpless tooth.

We should not undertake the treatment of canals in neglected mouths or those afflicted with pyorrhea. We should not undertake such treatment on maxillary molars and premolars when the apices of these teeth are near the maxillary sinus. The only cases in which treatment of canals may be undertaken would be in mouths that are in good condition and in jaws where no teeth are lacking, on condition:

(1) That the tooth has no abscess and is radiographed at two different

angles to make sure that there is nothing abnormal at the root and to understand its form well, in view of the treatment.

(2) That the patient submits to a medical examination by his physician, who shall attest that the patient is free from infectious organic disorders.

(3) That after the removal of the pulp a radiograph is taken with a metallic explorer in the canal, to show that it has been well cleaned at the apex.

(4) That another x-ray is taken, once the root has been filled, to show that the filling substance has reached the end of the root.

(5) That the patient is warned that if he should later have an infectious organic disorder or a serious overload, it would be better to sacrifice the tooth.

If you cannot fulfill all these conditions with your patient, I consider it is your duty to him and to the public to see that the tooth is extracted.

By my theory I think we should eliminate at least 95% of pulpless teeth.

Gold Crowns

A word about gold crowns, which I should like to throw out of our profession forever. Why employ this ugly work, which is a cause of infection in the mouth, which is unesthetic, irritating to the gums, which invites pyorrhea, while it is in nowise necessary? In every case where a gold crown is used it may advantageously be replaced by an inlay or an overlay, which are sane works and in nowise prejudicial to the health. Such work needs a little more time, more accuracy and skill, but is not public health worth the extra trouble?

Fixed Bridges

Let us now consider the subject of replacing the missing teeth. From the beginning of our profession until today fixed bridges have constituted the predominating method for replacing the missing teeth in nearly all partial cases. Until recent years there has been but little opposition to the fabrication of such bridges. It was recognized that some inconveniences existed in this type of work, but they were largely compensated by the comfort of mastication derived therefrom. With the progress of dentistry, and by means of statistics, it has been demonstrated that the inconveniences of fixed bridges are much more considerable and much more liable to cause injury than was formerly believed.

Removable Bridges

Then removable works made their appearance and spread rapidly, but their life was of short duration. Not succeeding in giving entire satisfaction with such work, dentists then returned in great part to the fixed bridges, acknowledged as bad. I claim that removable works are the true solution to the problem, and if they were a failure, it was owing to a wrong theory.

Laboratory men and dentists have each contributed in great measure to the abandonment of the removable work, the dentists in not giving enough of his time to that kind of work and in not attaching sufficient importance to the perfect contact required for the cast clasps of those works, and the laboratory men by insisting upon making the "one-piece casting," which does not give satisfaction. This type of work is advantageous only to the laboratory men. They like it because it is quickly made and very profitable. Such work,

however, is not advantageous to the wearer. A large part of the "one-piece casting" is very difficult to put in place and causes trauma; the other part, which is easy to put in place, causes no trauma, but does not hold sufficiently.

I affirm that the removable work, which can be taken out and cleaned when made fully in accordance with my principles, is the ideal work to replace all the missing teeth in the future. Such work is as solid and comfortable as a fixed bridge, but has none of the inconveniences of the fixed bridge. To obtain the desired result from the removable bridge, it is necessary that the clasps be made on models derived from impressions of each tooth to be clasped taken separately.

On the reproduction of certain little details or particulars of such teeth in the fabrication of the clasps very often depends three-fourths of the success of the work. After the clasps are cast, they should be tested separately in the mouth.

We should make sure that they are of the required solidity, and that they have a perfect contact with the teeth. After this is done, if the center part of the work has been cast, we may solder it to the clasps and try it again in the mouth, the clasps being soldered to the center before placing the teeth. When all this has been done, we need not be troubled about adjusting the work when it is finished, for it will be possible to put it in place with our eyes shut.

If we have reproduced a normal occlusion in the setting of the teeth, this work will be much superior to fixed bridgework and will have all the advantages in its favor over the fixed bridge. It will also be more in harmony with the laws of nature. When pressure occurs on the artificial teeth, it will be received directly by the gums which support these teeth, as opposed to the fixed bridges, where the pressure is supported by the adjacent remaining teeth, giving them an overburden of work and thereby causing trauma. Stillman, an artist in the treatment of pyorrhea, is of the opinion that trauma is the principal cause of pyorrhea.

I assert that fixed bridges no longer have any place in dentistry, as there is today a means of replacing them by more advantageous work. I maintain that fixed bridges are the greatest enemies of health, that they are gatherers of disorders, a great irritant to the gums; that they cause trauma, that they fail completely as regards hygiene, that they are the direct cause of pyorrhea, and that they are opposed to the laws of nature. The statistics of the Metropolitan Life Insurance Company confirm my assertions on this subject.

The only fixed bridge I should tolerate in the future would be in an anterior case where only one tooth is missing, that tooth being an incisor and held in place by an overlay.

Pyorrhea

By eliminating pulpless teeth, crowns and bridges from the mouth and reestablishing normal occlusion by removable work I believe that we can prevent pyorrhea in a great many cases. The cases of pyorrhea that we may meet afterward will be the consequence of defects in the mouth, where only a few teeth occlude. If the occlusion cannot be corrected by grinding certain cusps, orthodontia will be necessary. If orthodontia is not practicable, we must

sacrifice a part of the teeth and make removable works to reestablish normal occlusion. For, whatever may be the sacrifice, trauma must disappear; otherwise we cannot secure a healthy mouth.

The other cases of pyorrhea will be seen in neglected mouths, in conjunction with infectious organic disorders and in cases where some teeth are missing. In the latter instance the missing teeth must be replaced to balance the forces equally on each tooth, and these new teeth should be on removable appliances.

We then proceed to the ordinary treatment for pyorrhea. As I do not wish to give you a course on pyorrhea, each dentist may choose one of the standard treatments.

After having removed all the tartar and the sacs of pus from between the gums and the teeth and having reestablished normal occlusion, we may employ either trichloracetic acid in a 15% solution or the different vaccines, and with the assistance of ultra-violet rays, massaging of the gums and recommending a diet to the patient we may secure normal gums in a very short time.

In following my recommendations we shall remove the eyesore of a gold-filled mouth which so badly mars the facial expression. Whenever a patient visits his physician, after my theory has been followed, and is told to open his mouth, there will be seen two beautiful rows of white pearls maintained in place by handsome, firm and rosy gums. It will not be necessary for the physician to break his head to know whether the sickness of his patient arises from his teeth; he will be assured of the contrary and he will look elsewhere for the trouble.

CONCLUSION

Before going about preaching the principles of hygiene in all the corners of this province or of the country, it is most important that we should first set an example by eliminating the focus of infection from the mouth instead of introducing it therein. I hold that if my recommendations are observed to the letter, our great institutions of mental disorders, nervousness, incurable diseases, tuberculosis or other kinds of sickness will be much less encumbered than they are at present. These results would be for the good of one and all.

If my recommendations are fully carried out, it is no exaggeration to say that they will add to the average of life three, five, seven years, and perhaps more.

I desire that my recommendations be taken into consideration, and that in the future they serve as the basis of theory taught in the University of Montreal and in the other universities of America and elsewhere.

1575 Rue St. Denis

Odontology and Stomatology In Soviet Russia for the Past Decade

By Prof. GEORGE RANDORF, Leningrad

Second Article

The All-Ukrainian State Institute of Stomatology and Odontology in Odessa

At the inauguration of the All-Ukrainian State Institute of Stomatology and Odontology in Odessa on April 1, 1928, the Director mentioned the fact that Russia with a population of 150,000,000 had only 6,000 dentists, while the United States of America with a population of 100,000,000 could boast of 64,000 representatives of the dental profession. Further, he maintained that three great movements had been going on in matters of stomatology and odontology, viz., the American, the German and the Russian.

In America private dental practice serves the rich and well-to-do classes, and naturally problems of social and state dental help contradict the economic interests of the dental associations.

In Germany the case is different at the present time. Theoretical investigations and scientific work have been a more prominent feature than dental practice. The German people were poorer after the World War and the Revolution. Insured workers attracted large numbers of dentists. The odontological thought runs deeper, adapting itself to the new scientific basis. But on the whole economic laws determine the development of German as well as American dentistry.

In Soviet Russia it is different, as problems of private practice have been set aside. Conditions have been evolved for serving the great masses of the people. The aims and problems in this country separate it from those of both Germany and America. Nationalization of the means of production as well as of all material values, proletarization of the whole population and the socialistic reconstruction have had a far-reaching influence on the development and direction of Soviet odontology.

In old Russia dentists were pupils of Germans and imitated their methods in all branches, serving the same classes, that is, the rich and the well-to-do. Russians even prided themselves on the latest achievements in science and technic, which they had borrowed from their German teachers and friends. Nowadays, face to face with the great problem of serving the enormous masses of the people concentrated in the working class and the peasantry, it was found that previous methods had proved inadequate. Indeed, to consider only the astounding problem of treating caries in hundreds of millions of teeth, the use of rubber plates, the expensive porcelain and gold fillings, and the millions of people requiring prosthetic treatment, the innumerable toothless mouths, one could not help realizing that the individualistic Western

European methods would prove as unserviceable as those of their government had proved unserviceable and inapplicable for the government of the new revolutionary country.

It was clear that the customary methods borrowed from Germany were bankrupt, appearing like a drop in the ocean of the suffering of a population of 150,000,000. That was the moment for a declaration of the "revaluation of all values" in the matter of odontology, too. The years 1921-1923 were decisive for the great break from German influences. Russian dentists began to declare their independence from their German teachers. A new epoch dates from that period, which ushers in the birth of a quite independent Soviet odontology and stomatology. A period of mechanization of dental work followed and the scientific work was organized on a collective basis for a multitude of workers, for which purpose a special Institute had to be created.

Extracts from the by-laws of the Institute are as follows:

¶1. The aims of the State Odontological and Stomatological Institute are:

a. To put forward and solve scientific and scientific-social problems relating to odontology and stomatology.

b. To create new groups of specialists in all the fields of odontology and stomatology by means of improving the theoretical and practical knowledge of the young doctors graduating.

c. To create conditions for regular meetings of graduates of the odontological and medical faculties.

¶2. To organize and maintain courses for technical employees.

a. For the first school year to make the Institute ready for the reception of thirty-two doctors and students.

¶3. Being founded upon the Dental Polyclinic, the Institute utilizes all the necessary inventory and premises as well as the auxiliary institutions of the same. . . .

¶5. The director and his assistants superintend the practical studies of all student-doctors, conducting seminars as well.

¶7. The laboratory of the dental technical courses conducts its work independently, having its own staff of instructors from the prosthetic laboratory of the Dental Polyclinic.

¶8. Duration of the course of studies at the Institute: for doctors, 1 year; for dental technicians, 3 years.

THEORETICAL SUBJECTS AT THE INSTITUTE

Anatomy	12 hrs.
Physiology	12 "
Histology	20 "
Pathological Physiology	16 "
Conservative and School Dentistry	42 "
Prosthetic Treatment	32 "
Surgical	36 "
Social Odontology	16 "
Professional Hygiene	18 "
Bacteriology	20 "
Roentgenology	12 "
Syphilology	12 "
Otolaryngology	6 "
Nervous Diseases	4 "
Internal Diseases	6 "
Children's Diseases	4 "
Legal Medicine	4 "
Sanitary Enlightenment	8 "
Social Science	10 "
Chemistry	24 "
Total	314 hrs.

PRACTICAL WORK

Clinics for Conservative Dentistry	96 hrs.
Clinics of Surgical Dentistry (Operations)	72 "
Clinics of Surgical Dentistry (Extractions)	72 "
Clinical Prosthesis	96 "
Laboratory	96 "
Clinic for Dental Treatment of Children	36 "
Clinical Analysis	12 "
Visiting Establishments, Dental and Medical Institutes	30 "
Practical Work in Roentgenology	12 "
Total	522 hrs.

The Institute opened special courses for raising the qualifications of Ukrainian dental practitioners, besides conducting special scientific work. Sixty-nine dentists from twenty-two districts finished the courses last year, thus starting to introduce the newest methods of treatment and prosthesis in their respective localities. In a number of districts those dentists with a higher qualification succeeded in organizing surgical and prosthetic dental offices, thereby introducing new life in the most obscure places.

Recently a Department of Dental Ceramics was added, with the object of studying and preparing filling materials. The formation of a Section of Social Odontology has advanced considerably.

The method of replantation of gangrenous teeth is in great vogue here and is advocated by Dr. Kleitman himself, the present Director of the Institute.

The local station for testing the strength of materials at the Polyclinic takes an active part in the study of scientific technical questions connected with prosthesis, being in contact with the scientific investigatory department of the State Odontological Institute and occasionally executing its tasks.

Summing up, we may say that the Institute aims at the study of questions of prophylaxis, the discovery of the causes which give rise to the diseases of the teeth and the oral cavity, devising such means for their prevention as could be applied on a scale large enough to meet the requirements of large masses of the people. This accounts for the prominence given to the Faculty of Social Odontology at the Institute. A prominent place is occupied also by the work in clinics, laboratories, factories and such institutions as investigate the effect of different professions on employees, and also to those who carry on investigations among children, chiefly in the so-called *children's towns,* studying the sources of diseases with a view to discovering the causes of caries and devising measures for the prevention of the diseases of the teeth and the oral cavity.

The paramount aim of the Institute as the head of the Polyclinic is to involve the entire organized childhood of the city of Odessa. In this direction, it undertakes the elaboration of the methodology of dental treatment of children with a view to applying it on an All-Ukrainian scale; in other words, to raise dental help extended to children to the level of that which adults receive.

The organization of a Central Polyclinic for Children has advanced considerably and includes the following departments:

Conservative Treatment	4 chairs	8 dentists
Surgical "	1 "	1 surgeon
Odontological "	1 "	1 orthodontist

1 inventory clerk, 1 teacher (woman) of preschool experience
1 dental assistant

The planned sanitation of the mouth (oral hygiene) of school children of the

first and second grades embraces the method of Prof. Kantorovich, who advocates the treatment and filling of all permanent teeth and only those of the temporary teeth that are affected on the approximal surfaces facing the permanent teeth. Examination of school children's teeth takes place twice a year. Mass service and educational health work among school children are provided for, and in this work school superintendents, teachers and health physicians must take part.

In the summer months dentists are located in country places where pioneer brigades and children's colonies are concentrated. Besides, flying health groups are organized to conduct work in their respective localities in schools situated in the vicinity.

SOCIAL ODONTOLOGY IN THE UKRAINE

Diseases of the teeth, being considered as social diseases because of their frequency among the masses, are treated in a similar way to that other scourge—syphilis. Such an approach to the subject calls for the study not only of the state of odontological aid, the elaboration of methods of study and their improvement, but also of the problem of social dental treatment. For this purpose a chair of Social Pathology was established as a special branch of study, of which Social Odontology is a part, the object being to embrace not only the exact knowledge of purely odontological methods but also the entire series of biological investigations and the methods of investigating the conditions of life of workmen and peasants.

Here seems to be the proper place to discuss a special feature of the work of the present Director of the Institute, Dr. Kleitman, a feature which is certainly the outcome of his conception of the social nature of the professional work and the desire to serve the masses on a larger scale than would be possible in any other way. It is a feature, too, about which there is a great difference of opinion.

Since 1919 people in different countries have been searching for what other people had done before them, namely, for the substitution of the less noble but much cheaper metals for the noble but expensive ones. In 1919 Dr. Kleitman began the substitution of a cheaper metal for gold and platinum, and his attention was directed to chemically pure aluminum. Up to 1923 he made use of it in removable bridgework and then in fixed prosthetic appliances.

Basing his investigations on the experience of German odontologists, prominent among whom were Dr. Mamlock, Profs. Schreder, Dick and others, who had resorted to aluminum during the World War and praised its harmlessness and utility for mass prosthetic work as applied in thousands of cases to soldiers in both the German and the Russian armies and in the preparation of dishes by Drs. Liem and Rupp, Dr. Kleitman found it only necessary to add 2% copper to obtain a still more durable article.

I am sure the esteemed doctor had never read A. A. Powell's paper presented before the East Indiana Dental Association on May 5, 1897, and printed in *Items of Interest* in January, 1898 (Vol. XX), which shows that certain ideas may originate independently in different countries and climes.

Here is the reproduction of Dr. Powell's thoughts on the matter:

Cast Aluminum Dentures

Aluminum in its purity, being soft, is greatly improved for our art by an alloy of 5% silver, which gives it elasticity, hardness, toughness and strength, forming a metal approaching silver coin in hardness, while all its admirable qualities are retained, viz., lightness, brightness, non-corrosiveness and affinity for vulcanite. . . .

1. Its salt, alumnol, is a non-poisonous antiseptic astringent.

2. In metal plates cast aluminum ranks a close second to gold, while in perfect adaptation it is inferior to none.

3. Aluminum has all the properties for immediately conducting the thermal changes to the covered mucous membrane.

4. Aluminum is the lightest metal known with the exception of magnesium.

It resists the action of sulphur, nitric and sulphuric acids; nor is it affected by the vegetable acids, such as citric, oxalic and tartaric. . . .

All patients are delighted, and, indeed, it is a pleasure to meet them.

By its service the raw, inflamed tissue so often found under the unclean, heat-retaining rubber plate is eradicated.

From a sanitary point of view it is a superior plate. This alone would seem to appeal to the olfactories and prompt the esthetic dentist to recommend a cleanly, wholesome denture.

Cast aluminum affords us an opportunity of vastly raising the standard of our profession, bringing a fine class of work within the reach of a people who appreciate its value, and whose purse will not admit of the more costly plates. "In comparison with gold, it is a modifier of expense. . . ."

I appeal then for each one of us to press forward and work for a *more artistic,* skillful and scientific kind of dentistry.

In 1920 the first aluminum crowns were introduced. Later on the same metal was used in bridgework.

Investigations in a few cases, to learn the effect of aluminum bridges by removing them and examining the condition of the supporting teeth, confirmed the opinion of their usefulness, after which the Presidium of the Harkov Scientific Association approved Dr. Kleitman's method of prosthesis.

At present aluminum bridges are used even in private practice in Russia as well as in Germany. The low cost of the metal makes its use accessible to the large masses of people.

Prof. Dauge, Chairman of the First All-Russian Odontological Congress held in Moscow, November 26-30, 1923, after declaring that Dr. Kleitman's paper on *Dental Orthopedia and Prosthetic Technic,* read before that Congress, "had a great social significance," said: "As to aluminum as a material for prosthetic work, the efforts put forth by Dr. Kleitman are in accord with the modern demands of science and technic. It must be recognized that the Doctor pursued the right path, as aluminum will doubtless win a lasting position in dental prosthetic work. Every socially thinking odontologist should welcome any attempt that brings nearer to the masses every kind of dental help; he should welcome any step that is being taken in the way of simplifying and cheapening a method which, like Dr. Kleitman's, is, according to all the facts, capable of improvement and deserves it."*

As there was a strong opposition to this innovation, two authoritative committees conducted examinations of the insured workers of two factories who wore aluminum bridgelike prosthetic appliances prepared for them at the Central Odontological Polyclinic in accordance with Dr. Kleitman's method. The first committee consisted of representatives of the Odessa District Council of Professional Unions, the District Insurance Office, the Medical Aid Society, the working men of the State Tobacco Factory, the Second State

* *Journal of Odontology and Stomatology,* Nos. 1-2, 1924.

Shoe Factory, one surgeon and one odontologist. The examination was conducted at the respective establishments in 1925.

It appears from the protocol that the object of the investigation was to find out the propriety of using cast aluminum prosthetic appliances, for which purpose the committee looked for answers to the following questionnaire:

1. Age of patient wearing the appliance.
2. Size of the appliance.
3. How long ago was the appliance fitted in?
4. Did the color of the aluminum change?
5. Was an after-taste felt from the aluminum appliance?
6. If so, when? (*a*) In the morning after eating, (*b*) before eating, (*c*) in the afternoon after eating, (*d*) in the evening.
7. Was there any change on the surface of the crowns or the cast teeth?
8. Did any effacement occur on the masticatory or cutting surfaces of the bridges?
9. Durability of the appliance.
10. Was there any toothache experienced under the crowns?
11. How was the appliance used?
12. Was there any change in the health of the wearer of the appliance before or after the preparation of his or her appliance?

A TYPICAL CASE

Answers of One Patient to This Questionnaire

1. I am 41 years old.
2. I wear three fixed bridges of 16 teeth.
3. I have worn them for eight months.
4. I have not noticed any change in color.
5. Never. I feel as if they were my own teeth.
6. No after-taste from any kind of food either in daytime or at night.
7. No changes noticeable.
8. No traces of effacement have occurred.
9. The bridges stand the masticatory process well.
10. No toothache.
11. I have used the sets as my own teeth.
12. Before I used to suffer from constipation, but now, having the artificial teeth, I notice a decided improvement in health, though not yet a complete convalescence.

Results: The ages of those examined varied from 20 to 59, the time of having had the appliance from three weeks to two years. No unfavorable effects were noticed. Many declared that the use of artificial aluminum teeth produced an improvement in the work of the stomach and the intestines; some even gained in weight, the feeling being the same as if they used their natural teeth.

The official report confirmed the positive results, adding that many working men of the factories where the sittings took place asked for an opportunity to have similar fixed appliances, which they preferred to removable vulcanite dentures.

According to the findings of the

committee, aluminum proved its harmlessness without calling out any after-taste in the mouth or irritation of the mucous membrane of either the gums or the oral cavity, possessing the requisite durability and considerable lightness, thus presenting good reasons for being recommended for prosthetic appliances in the oral cavity. To all of which should be added its extreme cheapness in comparison with gold or platinum, those dear, "noble" metals which make it impossible for the State organs of the people's health protection to apply them to the millions of insured.

The second committee began its work much later under the auspices of dental surgeons and professors, who examined 41 persons wearing 67 appliances consisting of 427 parts (crowns and cast teeth), the bridges being built on 177 teeth, of which 167 had been devitalized.

The length of time of the wearing of the appliances was as follows:

1 month	1 bridge
2 months	7 bridges
3 "	5 "
6 "	6 "
7 "	3 "
8 "	4 "
9 "	6 "
10 "	6 "
12 months	4 bridges
18 "	3 "
24 "	3 "
30 "	1 bridge
5 years	2 crowns

Results: The bridges were found in satisfactory condition, the supporting teeth occasioning no pain from either cold or heat. In two cases complaints were made and the bridges were removed, as two teeth required refilling. Except for two or three cases, no complaint was made as to any unpleasant after-taste occasioned by the wearing of an aluminum appliance. In the great majority of cases satisfaction was expressed.

The condition of the appliances was as follows: 81% were quite satisfactory; 19% presented evidence of more or less disastrous effacement of the masticatory surfaces of the crowns, including three cases of a complete breakdown of the bridges, which necessitated an entire remaking of them.

Some of the defects might be due not so much to the properties of aluminum as to imperfect bite or faulty production of the partial dentures. Another point to be kept in mind is that the committee examined only 20% of the entire number of wearers of these prosthetic appliances.

Comments On the Article Entitled "Impacted Teeth"*

By ROBERT EUGENE PAYNE, M.D., D.D.S.

By ARTHUR J. MAURER, D.M.D., Oakland, Cal.

In the main I agree with Dr. Payne. The impacted mandibular third molar appears at times to be a tough nut to crack, but appearances are often deceptive and a little study before the operation is started will save many minutes of hard labor. Conversely, an impaction may, on casual observation, appear to be easy, when, if the matter is studied in detail, the true condition becomes apparent.

My comments on this article are based on the study of half-tone reproductions of the x-rays, which often do not produce the detail required, therefore I may be wrong in my opinion of this case, but the general principles remain the same.

In Fig. 1, with the caption, "Before extraction," the film was placed too far forward in the mouth, so that the detail of the distal apex of the third molar is not clear enough. The contact between the first and second molars is widely separated (compared with the x-ray after extraction), showing that the rays did not strike the film at right angles. This matter of contact of the second and first molars is of vital importance in third-molar removals. If the contact in the film is not shown exactly as it is in the mouth, you can be assured that the relation of the third molar to the second will not be shown in its true position as it is in the mouth.

Fig. 3, with the caption, "After extraction," is apparently ideal as to the position of the film in the mouth and the angle of the ray. You will note the ball contact of the first and second molars and also the complete outline of the distal socket in good detail. Had the first picture been taken in exactly the same way as the post-operative picture, I think the operative procedure would have indicated a different technic, with a saving of that forty minutes of time required to cut the tooth crown into two pieces.

From the picture after removal I think that too much of the bone just distal to the crown was removed, and that this removal should have extended further toward the apex of the distal root. Had a little bone been removed just distal to the tooth and well down past the cemento-enamel junction, where it is easy to cut, no buccal bone would have had to be removed, and this is the bone that is so hard to cut. Then by inserting a spear point or Winter's No. 2 elevator under the mesial of the third molar and using the bone as a fulcrum the tooth could be moved in an arc distally until the mesial of the third molar was free of the distal of the second, and then by rotating the blade of the elevator the tooth could be raised out of its socket and delivered.

If the bone distal to a mesially inclined third molar is removed in exactly the right place and amount, the danger of fracture is nil. Cutting a crown with

* This article appeared in the July, 1930, issue of *The Dental Digest*.

a bur or disc is bound to leave powdered tooth or carborundum in the area, no matter how careful we may be, and this substance remaining is foreign to the area and will cause some pain.

The use of the elevator can be very violent and dangerous if not done skilfully, but a disc that gets out of control can also be violent and dangerous. With the skilful application and use of the right fulcrum, combined with the removal of bone in the right area, the elevator technic is quicker and productive of less trauma and shock than any method I know.

Some patients might sit for forty minutes while a tooth crown is being cut in halves, but my experience has been that the quicker the tooth is out the better they like it. Therefore of two methods, assuming that both leave the area in the same condition for recovery, is it not our duty, for the patient's mental welfare, to complete the work by the method that consumes the less time? For this reason I believe that sectioning a crown is productive of much time spent needlessly and with tremendous shock to the patient.

To go back to the introductory paragraph of Dr. Payne's article—the impacted mandibular third molar is a bane to the general practitioner only because of so many mistakes in judgment and inadequate study of the case before starting to operate. Some even attempt impactions without an x-ray, then flounder around until they have every instrument they possess on the tray, having tried each one in turn without results, and end up, I grant, by getting the tooth, but at a terrible cost to the patient in shock and pain, and the dentist himself is spent for the balance of the day!

No one has a right to complain that the fee for removal of impacted teeth is not enough for the time and energy consumed. I find that the average patient is ready and willing to pay the proper fee for good surgery, unless some general man has quoted a ridiculously low fee before the case left him. Anyway, there is no law compelling the dentist to remove an impaction for a low fee, and if that is what he gets, it is because that is what he thinks he is worth and asks.

Trying to do surgery in a general practice has lost those men more patients than good surgery fees would bring in, therefore he is a very wise man who knows his limitations in third-molar work and attempts only those cases which he can easily handle and refers the harder ones to those who make such cases their business.

1904 Franklin Street.

Complete Sterility

By R. L. McINTOSH, D.D.S., Cleveland, Ohio

There are two ways to obtain sterile instruments, chemically and thermally. While good results follow the use of certain chemicals, the extra time and bother of handling poisonous fluids combine to make this method less popular than the thermal. It is about the latter procedure that we wish to reiterate a few points.

Of the many varieties of pathogenic bacteria which find lodgment upon the surfaces of instruments there are two divisions, the vegetative and the spore-forming types. The former are killed with comparative ease, while the latter seem to possess a tenacious hold on life. It is perhaps fortunate for the dental practitioner who is none too careful about sterilization that the spore-forming bacteria are in the minority. Usual methods are not effective in killing them, as they pass through ordinary degrees of heat and cold unscathed and continue to propagate thereafter. If we wish to be sure about killing the spores, a two-minute treatment in the autoclave at 250° F. or direct application of the free flame must be used. No germ has been known to survive either of these methods. The more common vegetative type is easily killed by immersion in boiling water or in a steam bath in a semi-open chamber for five minutes.

It goes without saying that the free-flame method should never be used on steel instruments; only iridioplatinum or platinum may thus be exposed. In employing the free-flame method, only alcohol should be used, as it is free from carbon formation. A flame from either natural or artificial gas deposits carbon and forms a carbon-platinum alloy which makes the metal brittle. If one must use a gas flame, hold the needle just above the inner blue cone to prevent excessive carbon formation. No matter what the source of heat may be, in using the free-flame method be careful to hold the metal in the flame only long enough to produce a dull cherry-red color and never a bright incandescence. Attention to this detail will make less business for the needle manufacturers.

Liberty Theatre Building.

[CAUSES OF INFLAMMATION]

Inflammation may be defined as a reaction of tissue to irritation. The causes are chemical, bacterial and traumatic. Obviously, the exodontist should attempt to minimize the causes of this phenomenon.

—GARDNER.

International Dental Federation (F.D.I.)

Chairman: Viscount de Casa Aguilar, Madrid
Secretary: Geo. Villain, Paris
Treasurer: A. L. T. C. van Hasselt, The Hague

The Brussels Conference of the F. D. I.

The International Dental Federation (F. D. I.) held its Annual Conference in Brussels, in the "Residence Palace," August 10-16, 1930.

An honorary committee, among whose members there were three ministers, took this Conference under its patronage, and the ceremonial inaugural session took place in the Palais des Academies, under the honorary presidency of His Royal Highness the Duke of Brabant.

A local committee, whose chairman was Mr. Joachim and secretary Mr. Demoulin, worked zealously for the organization of the material aspects of the Conference and arranged the receptions and excursions. Our Belgian colleagues omitted nothing likely to secure perfect success for the Conference.

The local organization planned an International Dental Hygiene Congress for August 8-9, immediately before the Conference of the F. D. I., and also an exhibition of the dental industry, which was open for the duration of the Conference.

The Executive Committee of the F. D. I. held several meetings, during which it heard the reports of the general secretary and of the treasurer and various financial reports in regard to the funds administered by the F. D. I. and the matters of the Bulletin, the memorial to Pierre Fauchard, etc. It drew up the budget and acted upon the notices sent in by members. A report was given on the progress of the organization of the Eighth International Dental Congress (Paris, August 3-8, 1931).

The Commissions, which worked extremely energetically, had three and one-half days at their disposal for their consultations and proposed the following agenda:

Informatory: Formation of local centers. Inquiry as to uniform classification of the F. D. I. work of the Commissions.

Red Cross: Results attained with the League of Nations and the International Labor Office. Preliminary consultations with the International Committee of the Red Cross. Social and vocational insurance. Participation of the divisions of the Red Cross in the exhibition of the Congress in 1931.

Press: Notices to the dental press of the world. Their continuation and extension.

Commission for Scientific Research: Rules of the Commission. Election of a special committee commissioned to complete the organization of the competition dealing with the treatment of root canals; competition work to be submitted to the International Dental Congress in 1931.

Legislative Commission: Alteration of the statutes of the F. D. I. Social

insurance and sick clubs. Care of the teeth.

Hygiene: Hygiene Commission of the League of Nations. Question of the publication of the work of the Commission. Jesson Endowment. Instructive leaflet for mothers. Treatise on alveolar pyorrhea. Dental Congress and Exhibit in 1931. Resolutions to be submitted to the Congress. The toothbrush. The care of teeth in schools. The care of the teeth among the people. International Institute for Dental Hygiene, etc.

On Friday, August 15, the reports of the commissions, after being translated and placed in the hands of the members of the Executive Committee, were examined by this committee in its last session, this closing the official Conference. The day following there was an excursion to Antwerp.

The Eighth International Dental Congress

The Eighth International Dental Congress, which will be held August 3-8, 1931, in the Grand Palais des Champ Elysées in Paris, will enjoy the honor of the patronage of the President of the Republic and of the French Government and the leading ministers.

The Organization Committee and the Commissions are already energetically at work.

Propaganda committees have been formed in most countries, and from these the sections receive suggestions for the reports and demonstrations to be included in the program.

The demonstrations will be carried out with the aid of the epidiascope, in order to enable a large number of visitors to participate in them.

At the plenary sessions, reports will be given by leading experts. Other prominent colleagues will take part in the discussions. The participants in the Congress will thus hear the exchange of opinions of the best practitioners.

At the same time reports will be given in the various sections, followed by debates participated in by experts in the line of work under discussion and especially selected to undertake this.

The statutes are printed in the four official languages, and their publication in the leading technical periodicals of the dental profession has already commenced.

Numerous declarations of agreement have already been received or have accompanied subscriptions. The General Secretariat for the management of the business and the Treasurer have been organized and have begun their work.

Many inquiries for information have already been received, and there is every prospect of a well attended congress of dentists.

The Managing General Secretariat,
45 Rue de la Tour d'Auvergne,
Paris, France.

DIGESTS

WHAT SHOULD THE PROSTHODONTIST EXPECT FROM THE EXODONTIST?

By Robert R. Gillis, D.D.S., F.A.C.D.

The author states that in the majority of cases that present with unsatisfactory ridges the blame can be placed directly on the patient. The teeth have been gradually extracted and alveolar atrophy has progressed in certain areas until the ridge is almost flat. The last remaining teeth are generally infected and consequently a great deal of the supporting tissue may be undermined. In the event of extensive pyorrhea the extraction of the teeth does not always stop the progress of the disease, and it continues to destroy the alveolar process.

There are a number of reasons for the repeated rebasing of dentures, among which are: overpostdamming and oxerextended borders, impinging peripheral borders with too tight an adaptation, lack of border extension resulting in lack of a supporting area, the use of arbitrary instruments and technics, an occlusion not suited to the patient's requirements, such as deeply cusped teeth for patients with senile habits of mastication, cusp interference, failure to establish the proper relationship between the maxilla and the mandible, and failure to conform to the laws of articulation.

Quoting earlier authorities on denture work, the author states that flattened ridges do not mean that satisfactory dentures cannot be made.—*The Journal of the American Dental Association,* July, 1930.

TEETH OF ANCIENT AMERICAN INDIANS

By Charles F. Bodecker, D.D.S., F.A.C.D.

An examination showed that there were present as many fissures and defects in the enamel of the teeth of the ancient American Indians as there are in the present day, but at that time these defects did not predispose the teeth to decay, since the incidence of dental caries was very low.

There was a great deal of abrasion, showing that the force of mastication of gritty food was greater than seen in civilized man today. This abrasion appears not only on the occlusal surfaces but on the approximal surfaces as well, to such an extent that in certain instances the entire enamel was worn off, exposing the dentin beneath. But even then no decay resulted, which would seem to be proof that there was a certain immunity to dental caries, probably to be found in the health of the individual.

Due to the highly refined, acid-forming food of today, these fissures and defects are a menace to civilized man, and the fact that they caused no

bad effect on the ancient Indian cannot be taken as proof that they can at the present time be neglected.—*The Journal of Dental Research,* June, 1930.

THE DENTAL CLINIC IN McDOWELL COUNTY, WEST VIRGINIA

By G. T. EPLING, D.D.S.

During the ten years of free dental service to children by the McDowell County Dental Clinic the number of private dentists has increased 271%, while the population has increased only 32%. This is due to the fact that the service to the children has educated the people to the need of dental service and has increased the practice of private dentists.

Defects have been corrected and the necessity of good, healthy mouths has been stressed. The source of many diseases, such as heart trouble, arthritis and tuberculosis, has been removed. It has been shown that retardation has been materially reduced by the correction of dental defects.

This clinic is the only one in the world to be established by an act of legislature and is supported by a tax levy on the people. The reduction in disease, the speeding of the children through the grades and the restoration to health of hundreds of pupils have fully justified the expenditure. Only two and a half cents out of every dollar paid by the citizens in taxes goes for the support of the clinic, and this is more than made up by the reduction in the number of school rooms and teachers ordinarily necessary to take care of the great number of retarded children. —*The Journal of the American Dental Association,* July, 1930.

DENTAL DISEASE IN HAWAII

By MARTHA R. JONES, Ph.D.; NILS P. LARSON, M.D., and GEORGE P. PRITCHARD, D.D.S.

This report is based on an extensive study of pre-school children of various races living in Honolulu and on the island of Oahu. No relationship between race or inheritance and dental decay could be established, and, while food plaques may be factors under certain conditions, they are not especially important from an etiological standpoint.

Odontoclasia, a type of surface disintegration, frequently occurs in young children, often among infants at the breast. It reaches a peak at three years of age and is rarely seen in adults. On the same diet adolescent children and adults are free from decay, while the teeth of young children in the same families undergo disintegration.

Certain diets that contain no milk, and that are high in carbohydrates, have been compatible with sound enamel over a period of hundreds of years, and candy *per se* is not an etiological factor. Sunshine, cod-liver oil, eggs, orange juice, tomatoes and milk do not prevent decay. After the age of three years, when the diet is of such a character as to produce an alkaline ash, then decay was arrested. However, with many persons an excess of acid elements produce no decay.

The conclusion was reached that the

incidence of decay in any one individual is in a state of flux and is directly related to his metabolism. But it is believed that any factor or combination of factors that tends to decrease the amount of base in the tissue fluids and oral secretions will proportionately increase the liability of the enamel to decay.—*The Dental Cosmos,* July, 1930.

Foreign Dental Literature

Edited by JOHN JACOB POSNER, LL.B., D.D.S., New York, N. Y.

THE USE OF EPHEDRIN IN DENTAL LOCAL ANESTHESIA

By ANDOR BAUER, Budapest

The advantages of local anesthesia are well known, but not less known are the unpleasant occurrences attending it. Strangely enough, there is less trouble following injections in other parts of the body than there is in the mouth. The cause of this difference in behavior is unknown. It might be in the difference in absorption, the overheating of the solution, or the rapidity of injection. Some believe it to be caused by the trauma which is frequently caused by operations in and about the head.

The unpleasant symptoms which are seen are many. The patients become pale, have heart palpitation, tremor, perspiration—and this may end in fainting or acute heart collapse.

If the instrumentarium and technic are eliminated, the causes of distress may be the nature of the surgical intervention, the solution injected, or the constitution of the patient. There are many diseases, such as arteriosclerosis, anemia, etc., which may contribute to unpleasant symptoms.

Unfortunately, a solution which can be given fearlessly to everybody is too weak to produce anesthesia.

It is known that the mere thought of a dentist can so affect a patient as to raise his blood pressure excessively and increase the pulse rate. In a case described, a patient was injected with a normal saline solution for experimental purposes, and before the regular injection of novocain could be made, the patient collapsed. In all cases, the mere injection of a normal saline solution was enough to raise the blood pressure and increase the pulse.

The psychic element must always be considered, and this may arise through fear at the sight of the needle or from the pain of the injection. Here is where the gentleness and personality of the operator are most effective.

The most commonly used anesthetic is novocain suprarenin. For the most part, the strength of the solution is from 2% to 4%. The suprarenin content varies. The amount of solution employed is very small when compared with the quantity used in general surgery. Here it is not uncommon to use 200 c.c. of a 1% solution, and even 600 c.c. of a ½% solution has been given.

Haertel says that the poisonous effect of an anesthetic is based upon the amount, the concentration and the place where it is injected. The rate at which an injection is made is also important, as a slow injection has less harmful reaction for the patient than a rapid one.

In novocain poisoning, three stages are seen. In the first, there is accelerated pulse, thirst, outbreak of perspiration and vomiting. In the second, we have a short, rapid pulse, sleepiness, cramps, failure in breathing and cyanosis. The third stage is paralysis of breathing and the heart centers.

It is advisable, therefore, for dental work to use a low percentage. Two per cent is customary and 4% is only to be used in extreme cases, such as a mandibular injection for the removal of a tooth with an inflamed periodontium. One patient took 40 c.c. of a ½% solution for general surgery and stood it well. Subsequently an injection of 4 c.c. of a 4% solution for a cyst of an upper tooth brought her to a state of collapse. The usual amount of suprarenin was used. The writer reports that no unpleasant sequelae follow the injection of just pure novocain without any suprarenin.

Adrenalin has a strong affinity for alkali, so no soda should be used in the sterilizer. Adrenalin has a definite influence upon the nervous system. It also affects the cardiovascular system, raises the clotting time of the blood, and depresses the cerebromedullary system.

It is unknown just how adrenalin is eliminated from the system. Adrenalin ties up the small blood-vessels and slows up the absorption of novocain, which also intensifies its action, and decreases its toxicity.

In an attempt to obtain a drug which would have all of the advantages of adrenalin but with none of its drawbacks, ephedrin was given to the profession. Adrenalin is an animal product, while ephedrin is the alkaloid of an exotic plant. It may be prepared synthetically. Ephedrin may be boiled and sterilized. Adrenalin acts more quickly and disappears more quickly than ephedrin. Ephedrin does not produce the unpleasant consequences which follow the use of adrenalin, and does not raise the blood-pressure.—*Vierteljahrschrift für Zahnheilkunde,* No. 46, Vol. 2.

OSTEOMYELITIS AND DEATH FOLLOWING TOOTH EXTRACTION

By W. BAUER, INNSBRUCK

When a tooth is ready for extraction, there usually exists pathology of some sort about the apex. The surrounding bone and soft tissue may be infected. Often it is necessary to use the chisel and mallet to remove the offending tooth and, as a consequence, the blood-vessels are opened and the bone exposed. Nevertheless, in the vast majority of instances, these cases heal normally and uneventfully.

There are many patients, however, who apply for relief from what appears to be an ordinary condition, but the developments are often alarming. Extensive surgical intervention may heal with no unusual reaction, and a simple extraction may set up a chain of disastrous events.

In regard to the infection which

might be local or general, the clinical symptoms vary. There may be a breaking down of the blood clot or the clot may fail entirely, and pus may be present in the socket. There may be swelling in the region of the lymph nodes and trismus. Fever and chills may be present with severe neuralgic pains in the ear.

The first case described by the author is that of a man thirty years of age; death followed in three days the removal of a lower third molar. In the second case, the patient, a fifty-one year old woman, had the lower incisors removed and during the course of the year osteomyelitis developed with the resultant loss of the remaining teeth, followed by general sepsis and death.

The mandibular canal plays an important part in these cases because the lower molars are often found in the canal or near it and infection may readily spread thereby along the entire length of the body of the mandible.

In the first case reported, histological examinations showed changes only in that part of the mandible surrounding the tooth socket, although many sections were made in different regions. Nothing unusual was seen histologically that could account for the fatal course of the extraction. Evidence was seen of an acute osteitis with the formation of pus, and that there had been inflammatory changes in the tissues for some time previous to the extraction.

In the second case, the section of the mandible showed a definite picture of osteomyelitis throughout. There was edema of the contents of the mandibular canal with infiltration of the arteries and nerve tissue.

The examination shows that it is an easy matter for the connective tissue in the mandibular canal to become infiltrated and undergo inflammatory changes while the surrounding bone appears unchanged.

In cases of osteomyelitis no surgical intervention should be attempted, but the case should be watched. There should be no extraction even of loose teeth, and only easily accessible abscesses are to be opened. The tendency to repair in these cases is so definite that even extremely loose teeth will tighten up.—*Die Fortschritte der Zahnheilkunde,* June, 1930.

ROOT-FILLING METHODS

By Oscar Muller, Basel

It is important to distinguish between teeth harboring vital or devitalized pulps. The author quotes Elias Lieban of New York and says this can be accomplished through various tests which include color, translucency, thermal, electrical, percussion, and radiography.

In devitalization of pulps, the tendency is to avoid arsenic and a new agent is mentioned. It is composed of paraformaldehyde, psicain, and chlorphenolcamphor. This is made into a paste. Since paraformaldehyde has not the dentin penetration that arsenic possesses, it must be placed directly over the pulp. It is not necessary that the pulp be widely opened up. A small opening is sufficient. It should be allowed to remain six days if the pulp is to be removed without anesthesia.

If the tooth is first anesthetized, the pulp clearly exposed, and the remedy applied, it may be painlessly extirpated in three days.

The writer quotes Hernemann, who has had a long and very favorable experience with paraformaldehyde. It fixes the pulp tissue, prevents its decomposition and offers no favorable soil for bacteria.

One of the outstanding efforts in root canal therapy and filling has been accomplished by Stein of Vienna. He has filled 839 canals with silver and radiographed them. Stein says that it is a laborious and time-consuming work, and that if the canal cannot be opened up and filled to the end, the teeth should be extracted. The use of an antiseptic paste to take care of any unremoved portion of the pulp is unsatisfactory.

The filling of canals with silver powder has had great favor in Vienna. Any excess forced through the foramen is subsequently absorbed. — *Die Fortschritte der Zahnheilkunde,* June, 1930.

DENTAL ECONOMICS

One Problem We All Sooner or Later Must Face

By CARLETON CLEVELAND, D.D.S., Highland Park, Illinois

In these days of phenomenal advancement and development in all the branches of the arts and sciences, as well as in commerce and industry, we hear much about "firing at forty," "shelving men at forty-five," and "excluding workers at fifty." Such ghastly headlines cause us middle-agers to pause and peer down the winding road that stretches before us into the land of the setting sun.

We are living in an age of youth. The very tenor of our professional, industrial and commercial life throbs with the activity engendered by the younger men—men with a fresh outlook, an eagerness to hurry on and discover what is just over the brow of yonder hill. Indeed, professionally, industrially and commercially, Opportunity (with capital *O*) has knocked at the young man's door and, from all appearances, had found him ready for the call.

With every call of opportunity, however, there comes also the invitation to shoulder responsibility, and this the youth of today should well comprehend, for across the pages of the economic history of modern civilization are scrawled the records of men who might have been veritable powers in their respective professions and industrial fields, but who fell to disastrous ruin because of their inability or unwillingness to carry the burden of responsibility. Indeed, the youth of today may well school itself to meet and shoulder this burden, for never was there a great opportunity without its corresponding obligation.

And this is just as true in the dental field as in any other walk of life. Every dental practitioner has within his grasp the shaping of his own destiny. Does he recognize his duty to his patients? And is he willing to serve them to the utmost? An appreciation of this responsibility will be found to have been a paramount factor in shaping the careers of outstanding men in the profession. Failure to recognize one's duty to those one serves or to one's fellow men generally is the fundamental cause of being "shelved" too early in life.

Although the dentist approaching middle life is not so seriously affected by this so-called shelving as men in commercial and industrial life, it is nevertheless imperative that he maintain a fundamental knowledge of the progress of modern dentistry so that he may continue to give the best possible service. He must continue to be a student of his subject and be ever alert to seek and grasp the newer ideas as they are given publicity in the printed pages of the dental periodicals or by

word of mouth as voiced by the clinicians at the gatherings of the various dental societies. In other words, the practicing dentist cannot afford to lose his hold on the teachings that mark the phenomenal advancement being made by the dental profession at the present time, unless he is willing to become a back number and be shelved.

It matters little whether it happens at the blooming age of twenty or at three score years and ten, but just as soon as one stops learning—or trying to learn—one becomes old. Old age comes on as one loses contact with and interest in the activities of one's daily life and one's duty to others. Any one who keeps on learning not only remains young, but continually adds to the capacity he possesses to serve both the individual and the community. In fact, it might almost be said that the usual association of old age and years has come about largely because so many of us, somewhere along in what is looked upon as middle life, have stopped trying to keep in step.

Probably the great difficulty with many a middle-ager lies in his own blindness to the vast opportunities and possibilities that stretch out before him. Too many of us become satisfied with the progress we are making or with the position we have attained. This "resting on one's oars" is the grave error of those who have passed out of early youth. Accompanying this resting on one's oars is the habit of "sliding into a rut"—getting into a groove and then jogging along and getting into it deeper and deeper until finally it seems impossible to get out.

Old age is not so much a matter of years as it is of mental capacity. Some are old during their childhood days, others are young at seventy. If a man will keep his body fit and his mind open to new impressions, he can go forward with a feeling of security, knowing that he is not a back number nor a "has-been." Pliability and open-mindedness are natural characteristics of the young. As the years pile up, however, these qualities must be cultivated.

The fact that the passing years may be registering their mark upon one's brow is no reason for letting go one's grasp of the activities and affairs of modern life. One has but to scan the records of achievement in one's own profession to see that age has kept abreast with youth. While both Wells and Morton were young men when carrying on their experiments in the discovery and development of the anesthetic properties of nitrous oxid, G. V. Black labored ardently and earnestly long after the so-called blood of youth had ceased to course through his veins. In fact, dental pathology and bacteriology might be said to be today exactly where the researches of Greene Vardiman Black left them.

In spite of the fact that Frederick Banting discovered insulin at the age of thirty-one or that Neisser was only twenty-four when he discovered the bacillus of gonorrhea, the contributions to dental literature that are to be left by that grand old man of dentistry, Charles Nelson Johnson, will go down through the ages as guiding beacons to light the way of future generations along the storm-tossed shore.

Indeed, decrepit old age steals upon us only when life grows stale and interest flags. Years alone cannot rob us of usefulness. As long as we maintain

a keen interest in life generally, an interest in the welfare of others, an interest in performing a service to humanity and keeping that service at the highest possible standard, we remain young in spirit, and the added years will only make us more gracious, more lovely, more kindly.

708 West Park Avenue.

[TRADE AND PROFESSION]

A trade which does not pay a reasonable profit to its workmen cannot exist. Dentistry, however, is a profession. No matter what the monetary returns may be, on account of the personal equation that enters into the rendering of dental services, there will always remain a certain number of men to continue the profession. The real danger in the continuation of the present state of economic deficiency lies in the quality and quantity of dental service. The number of dentists would automatically limit itself and would in time become inadequate to care for the dental health of the people. Thus the nation would suffer. The problem of dental economics is to secure for the art and science of dentistry a maximum of progress; for the dentist a fair proportion of the necessities and luxuries of life, and for the public a maximum of dental health.

—SALZMANN.

PRACTICAL HINTS

THIS DEPARTMENT IS NOW BEING CONDUCTED FROM THE OFFICE OF THE DENTAL DIGEST. TO AVOID UNNECESSARY DELAYS, HINTS, QUESTIONS AND ANSWERS SHOULD BE ADDRESSED TO EDITOR PRACTICAL HINTS, THE DENTAL DIGEST, 220 WEST 42D STREET, NEW YORK, N. Y.

NOTE—Mention of proprietary articles by name in the text pages of THE DENTAL DIGEST is contrary to the policy of the magazine. Contributions containing names of proprietary articles will be altered in accordance with this rule.

Reply to C. W. W. (February *Digest*).—The only way, I believe, to relieve a gagging patient entirely is to have the patient use a rubber stick or a finger and massage the roof of the mouth, starting in the front of the palate and working back over the soft palate. If he will have this done each day for thirty days, there will be no gagging. I have had some bad cases, but have never failed to cure them in this way.

If you want results, have the patient come to the office for the first week and do the massaging yourself. Then you are sure it is done, and by that time the patient will cooperate, but if you don't do this—well, you know!

J. C. GRINDLE, D.D.S.

Reply to E. G. B. (June *Digest*).—I would suggest that the patient is suffering from a cyst in the upper jaw.

I have had a case similar in symptoms to the one E. G. B. describes, where the patient was edentulous and had been wearing an upper plate for three years.

The history of the case is as follows:

After wearing the upper denture for one year the patient noticed a sore spot, slightly swollen and fluctuating on the palatal surface, in the region of the right lateral. She went to her dentist, who lanced the area and called the job done.

After a lapse of two years the patient came to me. I opened up the area and peeled out the cystic membrane. Then, after a lapse of six months, the area felt as it had never felt before to the patient, and to me it seems that the patient obtained a positive cure.

J. C. NOVAK, D.D.S.

Editor, Practical Hints:

Can erosion of the teeth be prevented, and how?

T. J. F.

ANSWER.—A person on a well-balanced diet and in good health will be the least likely to have erosion, assuming of course that there are no mechanical factors present. However, it would not be wise to predict that erosion could not occur.

After this trouble has appeared,

painting the areas with silver nitrate (where the discoloration will not be objectionable) and filling the deep cavities will tend to check it.

Editor, Practical Hints:

I have two patients who are fingernail-biters, a widow 45 years of age and a married woman of 30. They both say that they cannot quit. They are spoiling their nails and teeth. Both claim that they started in girlhood. Can you give me the cause and some treatment, so that I may help them?

W. L. N.

ANSWER.—If a woman thirty years old cannot break herself of biting her fingernails, she should come under the care of a physician. There is something radically wrong in her systemic condition that is entirely outside the field of dentistry, unless her nervous condition is due to a focus of infection in the mouth or to impacted teeth. The only thing that you can do is to place her mouth in perfect condition.

Editor, Practical Hints:

Please tell me what course should be pursued when a woman is pregnant and has a bad toothache from pulp inflammation.

W. H. H.

ANSWER.—The idea that no dentistry shall be done for a pregnant woman has been pretty well exploded, since it is far better from every point of view to have the tooth attended to than to let her suffer until the pulp dies and then forms an abscess. In this case the pulp should be removed or the tooth extracted, depending upon the conditions, and an anesthetic should of course be used, preferably nitrous oxid and oxygen.

It is by far the best plan to consult with the attending physician, and oftentimes it is preferable to have him present during the operation. Of course, if he advises her not to have anything done, then there is nothing that you can do.

Editor, Practical Hints:

Can you give me a remedy to stop the formation of thick, ropy saliva in edentulous patients? Any suggestion will be appreciated.

C. R. H.

ANSWER.—A thick, ropy saliva is probably due to a disturbance in metabolism, and the diet of the patient should be examined with the view to making it as nearly balanced as possible.

Editor, Practical Hints:

Please outline the correct technic for the construction of the ordinary Davis crown.

A. N. T.

ANSWER.—To fit a Davis crown properly is an extremely difficult proposition. The natural crown is reduced slightly beneath the gum margin, and the root face is given a distinct labiolingual convexity so that the crown base will be guided into position without any tendency to rotate.

The crown should be slightly longer than necessary and its base should be a little larger than the face of the root. The crown is then adapted to the root by grinding, close adaptation being

secured by the use of carbon paper.

The shoulder of the dowel should rest squarely on the face of the root and also in the depression in the base of the crown.

By using a thin disc of warm gutta-percha the overhang of the crown is shown and may be corrected.

Editor, Practical Hints:

I have a lady patient who has received dental service from me since 1923. Her mouth has always required constant watching, new cavities forming very fast.

About three or four years ago she became sick with diabetes and since then has been taking insulin treatments.

I find that the whole oral cavity is inflamed, new cavities form faster and her teeth are not firmly attached in their sockets. Consequently I am wondering if the trouble just mentioned is caused from diabetes, the insulin treatments or the diet required for treatment. Also, would such a case be favorable if all the teeth were extracted and full upper and lower dentures constructed?

S. N. D.

Answer.—Diabetes is a disturbance of metabolism and consequently will almost always be evident in the condition of the oral cavity. This is probably the cause of the caries and the loosening of the teeth.

No extractions should be made without consulting the physician in charge, since such operations have been known to result fatally.

It has been found also that in many cases diabetics cannot wear dentures satisfactorily. The adhesion of a denture depends to a great degree upon the tone of the tissue, and this tone is lost more or less because of the lowered resistance.

Editor, Practical Hints:

The patient is a woman, 35 years of age, apparently in good health, except for a lameness in the left shoulder and some swelling of the upper arm. This has been more or less constant since January. I extracted the upper bicuspid when the attack first commenced, which seemed to give relief for a short time.

Is it possible that the upper right central might be responsible for this trouble? It is a vital tooth and causes no noticeable irritation. I am enclosing two x-rays and would thank you for your opinion.

F. B. W.

Answer.—We have yet to see a case where a vital tooth was the cause of a systemic disturbance and consequently it is hard to believe that, in this case, the central is responsible. It must be remembered, however, that sometimes a pulp that is in a partial state of putrescence may respond strongly to vitality tests. It must be remembered also that there are other foci of infection, such as tonsils, sinuses, appendix, gall-bladder, etc., and that any of these may be the cause of the trouble.

Editor, Practical Hints:

Will you kindly state the best method of polishing cast aluminum plates?

C. S. P.

Answer.—Aluminum may be dressed

down with emery-cloth bands on the lathe, which should be run at high speed, and only light pressure should be used. Scratches may be removed by felt buffers and pumice followed by a soft brush and whiting. For the final polishing the following may be used:

A paste is made of two drams each of copper sulphate and potassium carbonate and one ounce of lard. To this paste add a dram or two of any one of several finely ground abradants, such as chalk, rotten stone, rouge, tripoli or buckhorn.

Editor, Practical Hints:

I have recently extracted all the teeth for a man about 55 years of age. It was my intention to make dentures when the mouth was healed. When I extracted his teeth he was so sensitive to gagging that it was a very difficult task. I am afraid that when the time comes to take the impressions it will be next to impossible, due to the gagging.

Is there anything I can use or do to remedy this condition so that I can take the impression? If I do secure the impressions, do you think he can learn to tolerate the dentures in his mouth? This is a very extreme case. Would a roofless denture be advisable in this case, provided other conditions are favorable?

Thank you very kindly for any help you may be able to offer.

W. W. F.

ANSWER.—We regret to say that there does not seem to be any panacea for gagging conditions due to oversensitive palates, as such cases are usually due to a hypersensitive condition of the nerves, and the cure or control of the condition is usually best effected by building up in the patient's mind the necessity for the work required and the fact that there is no physical reason why they cannot endure the pressure for the short period necessary.

If you can bring your patient to a state of determination that he *will* have the work done because he *must* have teeth, we believe that you will get along with less difficulty.

There are various expedients suggested by different men. One is to spray the posterior portion of the mouth with a weak solution of cocain or novocain, which will anesthetize the surface. Of course care must be used in any such application, because some patients are very sensitive to cocain, and even the smallest amount that might trickle down the throat would make them ill. Some men have the patient gargle with peppermint water or a mouthwash just before the impression tray with material is inserted. Some recommend that the patient be directed to lean forward slightly and in breathing to breathe forcibly through the mouth so as to keep the base of the tongue out of contact with the back of the tray or the impression material which is forced over the edge.

Nearly all of these things will help. One man of our acquaintance had gagging patients dissolve about a grain of quinin in the mouth just before the impression was taken. The bitter taste takes their mind off the irritating sensation which causes them to gag. We believe that if you will use one or two of these suggestions, but place your strongest dependence on preparing your patient to go through with it on the plea that hundreds of thousands of people

are having impressions taken every few days, that every one who has a denture made must have such an impression, and that since he must have teeth he must make up his mind to go through with it, you will find that you can convince the patient that it is not nearly so unpleasant as he anticipates.

We do not believe that you will find any help in roofless dentures, because at best they are comparatively short-lived.

Even the most extreme cases learn to wear dentures by persistence, and of course it is highly important that you have the rear margin of the denture in absolute contact with the mouth tissues, because if the margin is not in contact and there is that occasional touching, due to the movement of the soft palate, gagging will occur even in a normal case.

[A NEW TYPE OF CARIES]

A hitherto clinically unrecognized type of rampant decay of the teeth, simulating in great detail that recently described by Simonton and Jones and called by them "odontoclasia," has been found to be prevalent among the pre-school children of Honolulu. It occurs in permanent teeth, but with much less frequency than in the deciduous. It is a surface lesion and differs from ordinary dental caries in its age incidence, location of lesion on the teeth, mode of advance, order of teeth involved and etiology. The term "odontoclasia" is suitable for differentiation of the two lesions for diagnostic purposes.

—Jones, Larsen and Pritchard.

DENTAL SECRETARIES and ASSISTANTS

Secretaries' Questionnaire

All communications should be addressed to Elsie Pierce, care of THE DENTAL DIGEST, 220 West 42d Street, New York, N. Y.

NOTE—HAVE YOU A BETTER WAY? HAVE YOU A TIME-SAVING SHORT-CUT? DO YOU KNOW A "STUNT" THAT LIGHTENS THE WORK OR MAKES FOR GREATER EFFICIENCY IN THE OFFICE? IF SO, WRITE TO ELSIE PIERCE. YOU MAY HELP MANY GIRLS WHO ARE BEGINNERS—AND YOU KNOW HOW YOU NEEDED HELP DURING YOUR FIRST FEW MONTHS IN A DENTAL OFFICE. PERHAPS YOU NEED HELP NOW. WRITE TO ELSIE PIERCE—SHE WILL HELP YOU.

Dear Miss Pierce:

I graduated in June as a dental hygienist and am now employed as an assistant, there being no law governing the practice of dental hygiene in South Dakota. I am very much interested in my work and am keeping up with it.

Is there a magazine for dental assistants or dental hygienists? Would it be possible for me to join the National Association for Dental Hygienists?

M. G.

ANSWER.—In order to receive the magazine which contains the activities of the dental assistants throughout the country, one must be a member of the American Dental Assistants Association. A letter to Miss Henrietta McQuay, General Secretary, 903 Waldheim Building, Kansas City, Mo., will bring you full information as to requirements to join this Association.

If you will get in touch with Miss Agnes G. Morris, 886 Main Street, Bridgeport, Conn., Secretary of the American Dental Hygienists' Association, you will receive first-hand information regarding their magazine and the requirements for joining this Association.

Dear Miss Pierce:

For the past few months I have been working as a dental assistant. I enjoy the work and should appreciate any information you may be able to give me. Have you anything that would make me better acquainted with this work? If you have not, is there any place where I may receive this help?

E. W., Los Angeles.

ANSWER.—You do not state definitely the information you desire, therefore it is rather difficult for me to comply with your request. May I suggest that you write to the Package Library Department of the American Dental Association, 58 East Washington Street, Chicago, Ill., from which for a nominal fee you can secure such

literature as they have for dental assistants, and which, if you read it carefully, should give you much information of value.

Why do you not join the society for dental assistants in Los Angeles? I know of nothing better than to be a member of the society for dental assistants in your locality. Their programs of educational lectures, demonstrations, etc., on the work of assistants will bring you a great deal of helpful information. Ruth Myler, 901 South Second Street, Alhambra, Calif., is the president of the Los Angeles society. Write to her for full information.

In addition, let me suggest that you secure all the back numbers of THE DENTAL DIGEST that are available in your employer's office, or borrow them from other offices or from the library of the local dental society, and study the *Questionnaires* and such other material as is pertinent to office procedure. Also, borrow such books from your employer as treat of office procedure, and scan the pages of all the magazines that come into your office for helpful articles on such subjects as pertain to your work. Be alert in your office to every detail of the day's work, pay strict attention to the doctor's suggestions, watch carefully his methods of procedure so that you can anticipate his needs and those of his patients, and I am certain that you will soon become efficient.

You cannot hope to know all there is to be known about dental assisting in a few months. In fact, any assistant, if she wishes to keep up with the times and remain efficient, must constantly be on the alert and seize every opportunity offered for the advancement of herself and her calling.

Replying to E. A., Jackson Heights, L. I., N. Y., we suggest that she write to Mrs. E. V. Shoemaker, 180 Lefferts Street, Kew Gardens, L. I., President of the Educational and Efficiency Society for Dental Assistants, First District, New York, or to Miss Catherine Cooper, 142 Joralemon Street, Brooklyn, N. Y., who can give her information about the Brooklyn society. We do not know which of these societies for dental assistants would be more convenient for E. A.

Dear Miss Pierce:

I receive a great many fine suggestions from your *Questionnaire,* and I thought that the following might help some of your readers:

Once every so often the x-ray films are overexposed. The remedy for this is as follows. Wash the films in clear running water for ten to fifteen minutes, whether the films are wet or dry; then use the following solutions:

Solution No. 1	
Water	16 oz.
Sodium cyanid	65 gr.
Solution No. 2	
Water	1 oz.
Potassium iodid	80 gr.
Metallic iodin	40 gr.

When these solutions are to be used, mix one ounce of the first with 20 drops of the second, and with a cotton swab wash the films with this mixture until the desired result is obtained, after which wash the films in clear water for five to ten minutes and hang to dry. Radiatized films must be washed on both sides.

E. M. L., Ohio.

We appreciate this suggestion and ask that if any of our readers have a method of procedure that they have found helpful, they pass it on for the benefit of all. In this way our department can really be of value and expand, as so many of our readers would like to see it.

Educational and Efficiency Society for Dental Assistants, First District, New York, Inc.

The 1930-1931 activities of the Educational and Efficiency Society for Dental Assistants, First District, New York, will be resumed in October, when a regular meeting will be held at the Academy of Medicine, 2 East 103rd Street, New York, on Tuesday, October 14, 1930, at 8:00 p. m.

A program of lectures by prominent members of the dental profession and by members of the Society is being arranged for the regular meetings during the season. A series of classes on subjects of interest and value to the dental assistant, supplemented by clinics demonstrating these topics, is in preparation. These topics include secretarial assistance, chair assistance, x-ray and laboratory procedure, sterilization, practical psychology, first aid, dental anatomy, instrument-sharpening and care of equipment, as well as any others that may be requested by the members. The classes are free to members and are held once each week under the direction of competent teachers from the professions.

The Librarian is accumulating new material for the Library, which at present contains many articles taken from the dental press and a pictured history of dentistry and dental equipment. The Library is available at all times to members. For information, address the President, Mrs. E. V. Shoemaker, Kew Plaza, Kew Gardens, N. Y.

The Society meets regularly on the second Tuesday evening of each month, October to May, inclusive. All dental assistants are cordially invited to attend and members of the dental profession are always welcome.

EXTRACTIONS

No Literature can have a long continuance if not diversified with humor—*ADDISON*

Be careful what you start while trying to stop something.

If the Statue of Liberty had been placed at Chicago, she would have had both hands up.

Pop says a joint bank account is one where he does the depositing and Ma does the withdrawing.

Some great man once said that "ideas unrecorded are water stored in a sieve."

Doesn't it seem funny that the position of the hands is about the same in holding either a harp or a steering wheel?

(Abe)—I wonder why some dentists call their places "dental parlors?"

(Joey)—I don't know, but it seems to me "drawing rooms" would be more appropriate.

The assertion that the game of golf is just in its infancy must be a mistake. No infant ever used that kind of language.

The City Farmer Has His Troubles

A new farm hand from the city was told one wintry morning to harness the mule. In the dark he tackled one of the cows instead of the mule.

The farmer shouted from the house: "What are you doing?"

"I can't get the collar over the mule's head," yelled the new farm hand. "The mule's ears are frozen."

Believe it or not, we just heard about a Scotch dentist who threw a party, and mixed the highballs on a glass cement slab.

In a Pittsburgh suburb there is a fire company made up exclusively of women. It probably works out all right provided the girls don't have to drive the hook and ladder past a hat store window on the way to the blaze.

An anti-tobacco leaflet says a cannibal will not eat the meat of a man who has used tobacco. Well, what of it? Who's going to go without tobacco just to please a darned cannibal?

A Scotchman gave a party to his friends. He asked each one invited to bring something with him to add to the evening's enjoyment. So a Glasgow man brought whiskey, an Edinburgh man brought shortbread, a Dundee man brought marmalade, and an Aberdeen man brought his brother.

Isn't it rather pathetic to find that applesauce and boloney mean the same thing in our cherished language?

Explaining It

"Madam, this transfer has expired."

"Well, you can't expect much else with the cars so poorly ventilated."

Did you hear about the Scotchman who offered to take one of the Siamese twins out to lunch, and when the girl said she couldn't go, poor Scotty felt so bad he nearly cried?

(Artist)—Have you ever been painted in oil?

(Dumb Dora)—Heavens, no. How would I ever get it off at night?

Safety First

(Farmer's Wife to Druggist)—Now be sure to write plain on them bottles—which is for the horse and which is for my husband. I don't want nothin' to happen to that horse before the Spring plowin'.

Wet or Dry?

A red cap in the Grand Central Station offered to assist a lady by holding one of her infants while she held the other when trying to take some money out of her purse to purchase a ticket. When she had completed the purchase, she turned to the red cap for the other infant. He passed it over to her and said, "Madam, are these children twins?" The lady replied, "Yes, and you might be interested to know that they were born on Election Day, and we call them Smith and Hoover." "Well," said the red cap, rather sadly, "there is no question about who I was holding—it must have been Smith."

People Who Doctor Themselves

Why so many people actually suffer from the use of certain patent medicines is due to the fact that they don't know the first thing about the stuff they put under their ribs. The following incident proves the truth of this statement.

(Customer)—I want a box of Nelson tablets.

(Druggist)—I never heard of that preparation. What are they for?

(Customer)—Just for headaches and other pains.

(Druggist)—Don't you mean Anacin?

(Customer)—Sure, that's them — Anderson tablets.

FUTURE EVENTS

THE EASTERN DENTAL SOCIETY OF THE CITY OF NEW YORK will hold its first meeting of the season at the Allied Dental Council Auditorium, 425 Lafayette St., New York, on October 9, 1930, at 7:45 p. m.

Francis Scott Weir will deliver an illustrated lecture on *Full Denture Technic.*

W. S. Heermans will lead a round table topic discussion preceding the lecture, and a series of chair demonstrations and table clinics will be given by the following clinicians:

Joseph Ader
Herbert Berger
Myron Bogdonoff
S. S. Eisner
Jos. Homer
Jos. S. Landa
I. A. Levitt
Robert H. Lieberthal
S. J. Scheckter
Max Schwartz
H. E. Tompkins

The committee has arranged a most unusual and interesting program for the coming year. The hospitality of the meetings is open to all, and it is the desire of the committee to welcome personally visitors who may come alone.

LOUIS I. ABELSON, *Chairman*
310 West 72nd St., New York, N. Y.

THE CANADIAN DENTAL ASSOCIATION will hold its Sixth Annual Fall Clinic, under the auspices of the Montreal Dental Club, October 16-18, 1930, at the Windsor Hotel, Montreal, Canada.

The clinicians who will be present and their subjects are as follows: Albert J. Irving, New York, *Cavity Preparation;* James A. Loughry, Cleveland, Ohio, *Reconstruction of the Mouth;* W. A. Grey, St. Paul, Minn., *Periodontia;* and Edwin N. Kent, Boston, Mass., *Economics.*

The registration fee, which will be quoted on request, will include tickets for luncheons on the 16th and 17th. As the attendance will be limited, those wishing to attend are urged to register with the Secretary, Dr. M. L. Donigan, 1396 St. Catherine St., West, Montreal, Canada, as early as possible.

The Exhibit Section will be very fine.

The Canadian Dental Association's Golf Tournament will be held on October 15, the day preceding the opening of the Fall Clinic. Entries should be made at the same time as registration for the Fall Clinic.

THE SOCIETY FOR THE ADVANCEMENT OF GENERAL ANESTHESIA IN DENTISTRY will hold its regular meeting at the Buckingham Hotel, 57th Street and Sixth Avenue, New York, on Monday, October 20, 1930, at 7:00 p. m.

The following program will be given after the dinner:

Some Practical Aids to the Administration of Nitrous Oxid and Oxygen in Dental Practice, by Leonard Orens, M.D.

Interesting Points in the Relationship of Obstetrician and Dentist, by Joseph Nathanson, M.D.

LEONARD S. MORVAY, D.D.S., *Sec'y-Treas.*
76 Clinton Ave., Newark, N. J.

A Brooklyn Public Health Exposition is to be held during the week of October 20, 1930, in Brooklyn, a borough of the City of New York. The Exposition is to take place under the sanction and endorsement of the Medical Society of the County of Kings and the Second District Dental Society.

Shirley W. Wynne, M.D., Health Commissioner of the City of New York; Hon. Henry Hesterberg, Borough President; Luther F. Warren, M.D., President of the Medical Society of the County of Kings, and George Crawford Douglass, D.D.S., President of the Second District Dental Society, are Honorary Chairmen of the Exposition.

Headquarters for the show, which is to be held in the 23rd Regiment Armory, have been opened in the Brooklyn Chamber of Commerce Building, 66 Court Street.

In connection with the Exposition, President Hesterberg has issued a proclamation setting aside the week of the show as Public Health Week. There will be broadcast through one or more of the larger radio stations messages from the Health Commissioner, Commissioner of Sanitation and other speakers equally well known to the general public.

There are 4,500 physicians, 3,000 dentists and 2,750 retail druggists in Brooklyn. For these the Exposition will be open from 11 A. M. to 1 P. M. daily, so that manufacturers may provide demonstrations not offered through the usual channels of merchandising. Factory experts and technicians will thus have an opportunity to meet the members of the professions.

THE INDIANA STATE BOARD OF DENTAL EXAMINERS will meet at 8:00 a. m. on October 27, 1930, in the House of Representatives' Room, State House, Indianapolis, Ind., for the purpose of examining all applicants with proper credentials. Examinations will last probably through October 30th.

Applications should be in the hands of the Secretary one week before the date of meeting.

For applications, clinical requirements and other information, address

J. M. HALE, *Sec'y-Treas.*
Mt. Vernon, Ind.

THE CONNECTICUT DENTAL COMMISSION will meet in Hartford, Conn., November 17-20, 1930, for the examination of applicants for license to practice dentistry and dental hygiene and to transact any other business proper to come before it.

Applications should be in the hands of the Recorder at least one week before the meeting. For application blanks and further information, apply to

ALMOND J. CUTTING, *Recorder*
Southington, Conn.

THE ILLINOIS DEPARTMENT OF REGISTRATION AND EDUCATION will conduct examinations for registration to practice dentistry in Illinois on the following dates:

November 18-21, 1930, at the University of Illinois College of Dentistry, 1838 West Harrison Street, Chicago, Ill.

THE SIXTH GREATER NEW YORK DECEMBER MEETING FOR BETTER DENTISTRY will be held at the Hotel Pennsylvania, New York, December 1-5, 1930.

The committee is preparing a program which will be both interesting and of high scientific value. Among the essayists will be Comm. H. E. Harvey, Norfolk, Va.; Stanley D. Tylman and F. Blaine Rhobotham, Chicago, Ill.; Frank Fox, Philadelphia, Pa.; M. S. Weaver, Cleveland, Ohio; W. J. Chartres, Des Moines, Iowa; W. H. Wright, Pittsburgh, Pa.; E. N. Kent and V. Kazanjian, Boston, Mass.

The meeting will be continued on the same plan as to fee as previous meetings; that is, one fee admits members to all lectures, clinics, etc.

A subscription blank and list of clinics will be ready for distribution by November first.

There will be a manufacturers' exhibit in the hotel during the meeting.

JOHN T. HANKS, *Chairman*
CHARLES M. MCNEELY, *Vice-Chairman*

THE MINNESOTA STATE BOARD OF DENTAL EXAMINERS will hold its next meeting at the College of Dentistry, University of Minnesota, Minneapolis, Minn., on December 12, 1930. Applications should be in the office of the Secretary by December 1st.

W. H. SMITH, *Secretary*
2337 Central Ave., Minneapolis, Minn.

THE CHICAGO DENTAL SOCIETY extends a cordial invitation to all members of the American Dental Association to attend its ANNUAL MEETING AND CLINIC to be held at the Stevens Hotel, Chicago, February 2-5, 1931.

Following is a list of the sections, together with the names and addresses of the various section chairmen. It is their very earnest desire to prepare a program which will meet with universal approval. To that end they solicit constructive criticisms and suggestions which will assist them in the selection of essayists and subjects to be presented and discussed. Other suggestions for the improvement of the meeting and the comfort of visitors should be directed to the Secretary.

Section I. *Operative Dentistry.*
Chairman: A. E. Schneider, 25 East Washington St.
Vice-Chairman: E. W. Swanson, 25 East Washington St.

Section II. *Full Dentures.*
Chairman: Robert R. Gillis, Hammond, Ind.
Vice-Chairman: J. M. Besser, 55 East Washington St.

Section III. *Partial Dentures; Crown and Bridge.*
Chairman: R. A. Jentzsch, 185 North Wabash Ave.
Vice-Chairman: O. W. Silberhorn, 180 North Michigan Ave.

Section IV. *Oral Pathology.*
Chairman: W. G. Skillen, 311 East Chicago Ave.
Vice-Chairman: Isaac Schour, 1838 West Harrison St.

Section V. *Mouth Hygiene.*
Chairman: Irwin G. Jirka, 3165 West Madison St.
Vice-Chairman: F. B. Rhobotham, 55 East Washington St.

Section VI. *Orthodontia.*
Chairman: F. B. Noyes, 30 North Michigan Ave.
Vice-Chairman: F. E. Haberle, 55 East Washington St.

Section VII. *Oral Surgery.*
Chairman: E. L. Dunn, 25 East Washington St.
Vice-Chairman: J. L. Meredith, 30 North Michigan Ave.

Section VIII. *Dental Economics.*
Chairman: John H. Cadmus, 185 North Wabash Ave.
Vice-Chairman: F. van Minden, 185 North Wabash Ave.

Stanley D. Tylman will again be the chairman of the Program Committee and will be assisted by Frank H. Vorhees, David W. Adams, Frank G. Conklin and M. M. Printz.

The extension of the meeting from a three to a four-day meeting will give visitors an opportunity to attend more lectures and clinics than in past years.

The large Exhibition Hall has again been reserved for manufacturers' and dealers' exhibits. All reservations should be directed to Dr. C. Davidson, Chairman Exhibit Committee, 185 North Wabash Ave., Chicago, Ill.

HARRIS W. MCCLAIN, *President*
HOWARD C. MILLER, *Secretary*
55 East Washington Street

THE SECOND INTERNATIONAL ORTHODONTIC CONGRESS will be held at the Hotel Great Central, London, England, July 20-24, 1931.

A full and interesting program of papers and demonstrations is anticipated, and a museum is being organized. Suitable entertainment for ladies accompanying members will be arranged. Intending contributors to the activities of the Congress can obtain from the secretaries of their respective orthodontic or dental societies the conditions under which contributions are invited. The Secretary-General (A. C. Lockett, 75 Grosvenor Street, London, W.1) also will be happy to give information on request.

Information regarding traveling facilities and hotel accommodations may be obtained from the official agents to the Congress, Messrs. Morgan Pope & Co., of 7 St. James's Street, London, S.W.1; 6 Rue Caumartin, Paris; 71 Vanderbilt Avenue, New York; and Messrs. Noel Vester & Co. (Agents), 44 Unter den Linden, Berlin.

J. H. BABCOCK, *President-General,*
G. NORTHCROFT, *Vice-President General,*
E. D. BARROWS, *Treasurer-General,*
A. C. LOCKETT, B. M. STEPHENS, *Secretaries-General.*